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THE LABORATORY DIAGNOSIS OF VIRUS DISEASES

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Perhaps at no time in the history of medicine has such an era of discovery and adaptation of knowledge occurred as in the past two decades. This is especially noteworthy in the case of virus diseases. Although these ultramicroscopic agents have been known to exist for many years, knowledge of their specific properties has been elucidated only in recent years. During this time the study of viruses has grown into a branch of medical science equal in importance to bacteriology itself. This development has been so recent and the literature has grown so rapidly that there are few sources from which the clinician or the laboratory worker can obtain a simple and adequate survey of the present status of knowledge pertaining to methods of diagnosis of virus diseases. Actually it seems unlikely that the diagnosis of virus diseases will ever attain the simplicity of the diagnosis of bacterial infections. Furthermore, controversies have arisen in numerous instances as to the most practical methods of laboratory diagnosis. In many instances one method has been accepted as most valuable, while in the diagnosis of other diseases several tests are available.

The clinical features of certain of the virus diseases are uniformly consistent, permitting the physician to make a diagnosis with a fair degree of regularity. However, it should not be concluded that all virus diseases can be diagnosed without the aid of certain laboratory procedures. This is especially true of virus diseases of the central nervous system. In attempting to establish an etiologic diagnosis of some of the human encephalitides the clinician has had to depend on methods that are either inadequate or else cannot be adapted as a routine laboratory procedure. Also the laboratory may be of aid in the diagnosis of various abortive infections of virus origin.

Our primary objective in this article is to provide the physician as well as the laboratory worker with an analysis of acceptable procedures that are now available. Furthermore, the discussion is limited to an account of only those diseases of man in which it is generally accepted that the causal agent comes within the virus category.

The procedures followed in the laboratory diagnosis of virus diseases are analogous to those used in bacterial infections. Conclusive evidence consists in the demonstration and identification of the virus, although such tests are tedious and expensive. This may be readily accomplished in some of the virus diseases (psittacosis, yellow fever, influenza and rabies) by using susceptible laboratory animals or chick embryos instead of the ordinary culture mediums used for the isolation of bacteria. Unfortunately, many factors complicate the use of certain animals in virus study: (1) costliness of animals prohibits their use (monkeys in poliomyelitis), (2) in some cases animals must be strictly isolated to prevent contact infections (ferrets in influenza) and (3) latent viruses of ordinary laboratory animals frequently confuse diagnosis.

Once the virus is recovered, identification is accomplished by determination of the animals for which it is pathogenic, routes by which it can be given, tissues which it infects, pathologic lesions produced (including inclusion bodies) and specific immunologic reactions.

In the diagnosis of bacterial diseases it is often useful to cultivate the causative organism from lesions or discharges. Since viruses cannot be grown in the absence of living cells, it is necessary to inoculate animals with material from the patient. The route chosen for inoculation usually depends on which tissues of the body are susceptible; for example, in influenza secretions from the human respiratory tract are inoculated intranasally into ferrets. Evidence that a virus is present is demonstrated by the production of a disease in the animals inoculated. This may be recognized by clinical and pathologic signs. The disease should then be transmissible similarly from animal to animal, indicating that a true infectious agent is present. Cultures, smears or sections may be employed to determine that bacteria or other nonviral infectious agents are not producing the lesions.

After the identification of a virus it is important to determine whether it was present in the body as an incidental contaminant or whether it was similarly encountered during passages in animals. Comparisons of the clinical and pathologic aspects of the disease in human beings and in animals help to determine this point. The comparison of immunologic tests on serums taken during the acute phase and convalescent stages of disease in human beings is likewise important. If specific antibodies have developed during or shortly after the clinical disease, it is likely that the virus is the cause of the human disease.

Microscopic study of virus-containing tissues is of value in identification and in establishing the relationship of the virus to the human disease under investigation. Certain viruses producing apparently identical lesions, however, may be distinguished only by their species specificity or their immunologic reactions. Inclu-

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sion bodies are not sufficiently distinct in all cases from the morphologic standpoint to serve as characteristic indicators of the presence of virus. Furthermore, these bodies have not been demonstrated in a number of virus diseases, they have been found often in pathologic material in which the presence of a virus could only be suspected [1] and they have been produced in tissues in which the presence of a virus could be excluded with reasonable certainty.[2] When a virus can be demonstrated by passage as indicated previously, the presence of inclusion bodies may serve as corroborative evidence.

NEUTRALIZATION TESTS

Neutralization tests are generally used for detecting the presence of virus-neutralizing antibodies for diagnostic or epidemiologic purposes. The serum to be tested is mixed with the virus in suitable proportions and then inoculated into susceptible animals. In some of these tests the amount of virus used is kept constant and different dilutions of serum are added, while in others the amount of serum is kept constant and the virus diluted. In general, the basis on which virus neutralization tests are interpreted depends on the susceptibility of the animal used. Usually when the virus is highly pathogenic the results are interpreted according to the proportion of animals that survive. When a less infective virus is used, all animals that do not die must be killed and examined for evidence of specific lesions. For example, in the case of neutralization tests with influenza virus, the lungs of all mice are usually examined for evidence of consolidation.

It has been shown that demonstration of protective antibodies is more effective when serum-virus mixtures are given by some routes of inoculation than by others.[3] This fact must be taken into consideration when practical diagnostic tests are being done. For example, with vaccinia virus, neutralization is more readily demonstrated if serum-virus mixtures are inoculated intracutaneously rather than intratesticularly in the rabbit. In equine encephalomyelitis it is preferable to inoculate 16 day old mice intra-abdominally rather than intracerebrally.

The most conclusive diagnostic evidence is available when the virus has been recovered from infectious tissues and an increase in specific neutralizing or complement fixing antibodies demonstrated in the convalescent serum of the patient. Correlation of laboratory and clinical findings in certain virus diseases, however, has shown that the serologic procedures are applicable even when virus is not recovered. Immunologic tests should be done on the blood serum obtained during the early stages of the disease and again after recovery of the patient. The presence of specific antibodies is of particular significance if blood specimens taken during the acute phase are negative and become positive with convalescence of the individual. Though such diagnoses can be made only after the patient recovers from the disease, they are of definite public health significance. Frequently a specimen of serum can be obtained only during convalescence. In such cases the validity of the diagnosis depends on the frequency with which serums from apparently normal persons in a given community give positive tests. For example, in attempting a diagnosis of St. Louis encephalitis or lymphocytic choriomeningitis by single specimens of serum taken during convalescence, it must be remembered that the serums of many normal persons of the same community also give positive results.[4] During epidemic periods, because of subclinical exposure, a large percentage of normal persons may develop antibodies against the virus responsible for the outbreak. Accordingly, based on the study of serum specimens from the general population and from cases of influenza occurring during the 1940-1941 outbreak in St. Louis,[5] the level of complement fixing antibodies near a titer of 1 to 16 in terms of the original dilution of the patient's serum was found to be significant of epidemic influenza. In certain virus diseases specific antibodies develop quite rapidly (St. Louis encephalitis and equine encephalomyelitis), while in others antibodies may not become apparent for several weeks or even months (lymphocytic choriomeningitis). The absence of neutralizing antibodies against at least the poliomyelitis virus in human serum may not exclude the diagnosis, since specific antibodies may not develop in the serum after a typical clinical attack.[6] On the other hand, the disease may develop in persons who already possess antibodies in their serum. Although it is possible that these facts may be explained when there is more knowledge of immunologically distinct strains and inapparent infection, it now appears that serologic tests alone are of little value in the diagnosis of poliomyelitis.

Specific neutralization tests have been described for many of the known virus diseases, and the accompanying table indicates where these tests may be of value as laboratory aids in diagnosis.

IN VITRO TESTS

The early literature contained many conflicting reports concerning the application of complement fixation tests to the study of virus diseases. In subsequent years, however, various improvements have been introduced which have resulted in the more extensive use of this test. Various workers have shown that some antiviral serums are capable of fixing complement in the presence of their homologous antigens similar to the fixation of complement by antibacterial serums with suspensions of the appropriate micro-organisms. The essential difference, however, lies in the fact that viruses cannot be grown in large amounts on ordinary culture mediums and that antigen consisting of infected tissues must be employed instead. This necessitates the addition of suitable antigen and serum controls. Theoretically, in vitro immunologic reactions should be demonstrable, provided a sufficient quantity of virus is contained in the tissue used as antigen.[96] However, if the concentration of virus in the tissues is low, a delicately balanced system must be used.[14] Enough time must be allowed for the union of antigen and antibody. Accordingly, Bedson and Bland [97] permitted complement fixation to occur over a period of hours at low temperature, employing the procedure previously used for increasing the delicacy of the Wassermann test.

Although many investigators doubted the specificity of the early complement fixation tests with viruses, sufficient evidence has accumulated in recent years to eliminate uncertainty. Virus diseases that can now be diagnosed by means of the complement fixation test, together with the respective authorities, are indicated in the table. The reader is referred to the articles cited for details of technic of tests.

Precipitation or flocculation reactions have been reported by many investigators.[98] The practicability of these precipitation tests as a diagnostic aid in the diagnosis of virus diseases is limited, as indicated in the table.

THE USE OF THE CHICK EMBRYO AS AN AID IN DIAGNOSIS

The chick embryo is now widely used for the isolation, cultivation and titration of viruses, for titration of antiviral serums, as a source of antigen for immunologic procedures, for the preparation of vaccines for human use and for studying the development of lesions. The reader is referred to the articles by Goodpasture and his associates,[99] Burnet,[100] Stevenson and Butler [101] and Bengtson and Dyer [102] for details of methods now in general use for inoculating eggs. Convenient histologic methods of examining infected chorioallantoic membranes have been described by Goodpasture and his co-workers,[103] Himmelweit [104] and more recently Burnet and Faris.[105] Cooke and Blattner [106] have described a method for supravital staining which renders lesions on the membranes more easily visible.

PRESERVATION OF VIRUSES

It has long been known that viruses which are unstable and rapidly become inactivated at room temperatures retain their infectivity for longer periods at lower temperatures. Even the most unstable viruses may be stored almost indefinitely with no detectable decrease in infectivity when maintained at low temperatures. Proper preservation of viruses eliminates the necessity of expensive and time consuming animal passage and is important if virus is to be available when needed. The most widely used method of preservation consists of the immersion of infected tissue in glycerin. (It is not necessary to use the Schering-Kahlbaum brand of glycerin, but it is desirable to use a good pure grade.) This method is simple but does not maintain the infectivity of some viruses over long periods. Flosdorf and Mudd [107] have described procedures and apparatus for preservation of viruses and other biologic materials by drying while in the frozen state. This system has been found to be very effective for most viruses. Carbon dioxide in solid form has been used to maintain virus-containing materials at very low temperatures with conspicuous success.[108] Horsfall [109] has described a low temperature storage cabinet designed to accommodate a large number of virus specimens in an easily accessible manner and to maintain them in a state of unaltered infectiousness. The specimen tubes are surrounded by a cold gas mixture resulting from the evaporation of solid carbon dioxide, and a temperature of minus 76 C. can be maintained.

COMMON ERRORS IN LABORATORY PROCEDURE

Unquestionably the diagnosis of virus diseases by laboratory methods is subject to numerous difficulties. One frequent error occurs when a latent virus appears during animal passage and is mistaken for that causing the human disease. Several spontaneous infections in apparently healthy mice from various highly inbred laboratory stocks have complicated experimental study of viruses. From apparently healthy mice Traub [110] isolated a virus later found to be identical with the lymphocytic choriomeningitis virus isolated by Armstrong and Lillie.[111] (This virus has been subsequently isolated from a number of animals used in experimental work.[112]) Theiler and Gard [113] recovered a mouse encephalomyelitis virus from spontaneously paralyzed stock mice. Olitsky [114] was able to recover Theiler's encephalomyelitis virus from the intestinal contents of practically all of his adult stock of white mice. Theiler and Gard [113] recovered the virus in approximately two thirds of 6 month old mice.

The aforementioned viruses can be identified immunologically by the use of specific antiserums and by testing surviving immune animals. A virus capable of producing fatal pneumonia in mice was recovered from apparently normal mouse lungs by Dochez and his associates.[115] A spontaneous mouse infection against which it is not possible to produce effective antiserum in rabbits, and which appears to be similar to that described by Dochez and his co-workers,[115] was reported by Gordon, Freeman and Clampit.[116] Freeman [117] has pointed out that there may be no immunity to a virus that lies dormant in mice until stimulated by serial passage of lung emulsion or of isotonic solution of sodium chloride inoculated intranasally. More recently, Horsfall and Hahn [118] recovered a latent virus from normal mice which was capable of producing pneumonia in its natural host and which proved to be different from other viruses which various investigators have found in normal mouse lungs. The strictly pneumotropic virus described by Horsfall and Hahn [118] readily immunized mice and produced neutralizing antiserum in rabbits, hence differing from the viruses recovered by the previous investigators.[119] A number of reports dealing with the recovery of viruses from other experimental animals have also appeared.[120]

Many workers in the fields of biology and medicine believe that if results need statistical evaluation they are of such an inconclusive nature that they should not be considered valid. On the other hand, we are of the opinion that results which look significant may well be given the test of statistical analysis, since occasionally they may not prove to be as conclusive as they appear. Mainland [121] discusses the use of statistical methods in such situations. Furthermore in the primary isolation of a virus it is desirable to use a large number of animals. This obviously increases the possibility of getting positive results, and if all animals show signs of infection activation of a latent virus is less likely to have occurred. Also in serum protection tests the use of enough animals makes the conclusions less open to criticism. Schaeffer and Muckenfuss [122] have shown how difficulty in using large numbers of monkeys in experimental poliomyelitis has often made results invalid.

Authorities differ as to the amount of incubation of serum-virus mixtures necessary in the performance of neutralization tests. Although some workers advocate definite incubation periods, good results have been obtained when only sufficient time to make necessary manipulations was allowed. Incubation may cause some inactivation of the virus, so that it is important that control animals inoculated with normal serum-virus mixtures are carefully observed. It is desirable to inoculate the immune serum-virus mixtures first, so that any protection observed cannot be attributed to standing during inoculation of control animals.

The diluent used for suspending the virus-containing tissue is an important factor and is almost always stated. In general, 1 to 10 per cent solutions of normal horse or rabbit serum in saline solution are satisfactory, but it must be made certain that the serum does not contain specific antibodies against the virus used. Infusion broth is also valuable but in 1 instance has been found to be inferior to serum.[123] Beef infusion broth containing 20 per cent horse serum has been found satisfactory in studies with influenza virus.

Although specific complement fixing antibodies have been demonstrated in many virus diseases, these reactions are so delicate that the execution of the tests, their adequate control and the interpretation of results

demand the utmost care and attention. One of the chief obstacles remains that of nonspecific complement fixation caused by tissue proteins from which viruses are inseparable. For example, the appearance of cerbody is obtained must be considered. Fairbrother and Hoyle [124] found from their control experiments that the complement fixation which occurred between anti-influenzal ferret serum and influenzal mouse lung was

Laboratory Diagnosis of Virus Diseases of Man *

Disease	Detection of Virus: Respiratory Secretions	Skin Lesions	Genital Lesions	Central Nervous System	Spinal Fluid	Blood	Feces	Conjunctiva	Saliva	Tests for Antibodies: Neutralization Test	In Vitro Tests	Pathology: Histopathology	Inclusions	Skin Tests	Laboratory Animal of Choice	Laboratory Procedure of Choice
Influenza	7	..	..	..	..	..	..	..	..	8	9	10	..	..	Mouse	Complement fixation or Hirst red cell agglutination
Common cold	11	..	..	..	..	..	..	..	..	..	..	..	..	..	Chimpanzee	Inoculation of chimpanzees or human volunteers †
Psittacosis	12	..	..	..	..	12	13	..	..	14	15	16	16	..	Mouse	Complement fixation ††‡
Primary atypical pneumonia, etiology unknown ** ‖‖	..	..	..	..	..	..	..	..	..	..	..	18	..	..	.....	° (17)
Measles	19	..	..	..	..	19	..	..	..	..	..	..	..	..	Monkey	Inoculation of monkeys and human volunteers †
Epidemic parotitis (mumps)	..	..	..	..	..	..	..	..	20			20	..	..	Monkey	Animal inoculation †
Lymphocytic choriomeningitis	..	..	..	..	21	22	..	..	..	23	24	25	..	..	Mouse, guinea pig	Animal inoculation and complement fixation or neutralization ††
Equine encephalomyelitis	..	..	..	26	27	28†††	..	..	..	28	29	30	31	..	Mouse	Neutralization or complement fixation ¶¶
St. Louis encephalitis	..	..	..	32	..	..	..	..	..	33	29	34	..	..	Mouse	Neutralization or complement fixation ‖
Japanese B encephalitis	..	..	..	35	..	..	..	..	..	36	37	38	..	..	Mouse	Neutralization or complement fixation
Encephalitis lethargica ‖‖	..	..	..	..	..	..	..	..	..	..	..	39	..	..	.....	°
Australian X disease	..	..	..	40	..	..	..	..	..	..	..	40	..	..	Monkey	°
Forest-Spring encephalitis ‡##	..	..	..	41	41	41	..	..	..	42	..	41	..	..	Mouse	Neutralization °
Poliomyelitis	43	..	..	44	..	..	45	..	..	46‡	..	47	47	..	Monkey	Inoculation of monkeys with stools †
Louping ill ***	..	..	..	..	..	48	..	..	..	49	37	50	..	..	Mouse	Neutralization or complement fixation
West Nile fever §§	..	..	..	..	..	51	..	..	..	51	..	..	..	..	Mouse	°
Rabies	..	..	..	52	..	..	..	..	53	52	54	55	55	..	Mouse	Smears or sections for Negri bodies ##
Aujeszky's disease *** (pseudorabies)	..	..	..	..	..	56	..	..	..	..	..	..	..	..	Rabbit	Animal inoculation
B virus ***	..	..	..	57	..	..	..	..	..	57	..	57	57	..	Rabbit	Animal inoculation
Variola	..	58¶	..	..	..	..	..	..	..	59	60	61	61	..	Chick embryo	Inoculation of chorioallantoic membrane
Varicella	..	62	..	..	..	..	..	..	..	..	..	63	63	..	Human volunteers	Biopsy †
Herpes	..	64§§§	..	65	..	..	..	..	..	66	..	67	68	..	Rabbit	Animal inoculation
Herpes zoster	..	..	..	..	..	..	..	..	..	..	..	67	67	..	.....	Biopsy †
Inclusion blennorrhea	..	..	69	..	..	..	..	69	..	..	..	70	70	..	.....	Examine smears for inclusions
Trachoma	..	..	..	..	..	..	..	71	..	..	..	71	71	..	Monkey	Examine smears for inclusions
Epidemic keratoconjunctivitis	..	..	..	..	..	..	..	95	..	95	..	95	..	..	Mouse	°
Yellow fever	..	..	..	..	..	72	..	..	..	73	74	75	76	..	Mouse	Biopsy or neutralization
Dengue fever	..	..	..	..	..	77	..	..	..	..	..	..	..	..	Monkey	Inoculation of monkeys or human volunteers †
Rift Valley fever ***	..	..	..	..	..	78	..	..	..	79	..	80	80	..	Mouse	Animal inoculation
Bwamba fever §	..	..	..	..	..	81	..	..	..	81	..	..	..	..	Mouse	°
Sandfly fever (phlebotomus fever)	..	..	..	..	..	82	..	..	..	83	..	..	..	..	Chick embryo	Inoculation of chick embryo
Lymphogranuloma venereum	..	84	85	..	..	..	..	84	..	86	87	88	89	90	Mouse	Frei test or complement fixation
Foot and mouth disease	..	91	..	..	..	..	..	..	..	..	92	..	..	..	Guinea pig	Animal inoculation
Molluscum contagiosum	..	93	..	..	..	..	..	..	..	..	..	93	93	..	Human volunteers	Biopsy
Verruca vulgaris (warts)	..	..	..	..	..	..	..	..	..	..	..	94	94	..	.....	Biopsy

* This table is intended to serve as a guide to reliable literature for details of technic. The numbers indicated refer to the bibliography, which appears on the following page. Only procedures that are considered established are included.
** Refers to the so-called virus pneumonias, although a virus has usually not been recovered.
*** The only known cases are those which have occurred as laboratory infections.
† Not feasible under ordinary circumstances.
†† Complement fixing antibodies are present before neutralizing antibodies make their appearance.
††† Western type.
‡ Because of the high incidence of accidental infections, only experienced workers should carry out animal inoculations.
In addition to microscopic examination for Negri bodies, it is desirable to inoculate suspected brain tissue into mice.
‡## There are some indications that this disease is the same as louping ill (Casals and Webster: Science **97**: 246, 1943).
‡ The value of the neutralization test is controversial; hence this test is of doubtful significance in poliomyelitis.
¶ Immunologic in vitro tests using known serum and vesicle fluid, or crusts may also be used.[58]
¶¶ Neutralizing antibodies usually appear earlier than complement fixing antibodies.
‖ Neutralizing antibodies appear slowly after recovery.
‖‖ Causative agent not known but thought to be a virus.
° Because of insufficient data the laboratory procedure of choice is not as yet established.
§ Disease recently encountered by Smithburn and his associates [81] in Bwamba County, Western Province of the Uganda Protectorate.
§§ A disease recently encountered by Smithburn and his associates [53] in the West Nile District, Northern Province of the Uganda Protectorate.
§§§ Direct inoculation of chorioallantoic membrane of developing chick embryo with fluid from herpetic lesions is a useful procedure.

tain immunologic effects, such as the Forssman phenomenon, may interfere with interpretation of the results of serologic reactions. The animal species from which antigen is derived and animal species from which antinonspecific in character, as the same effect was obtained with normal mouse lung as antigen. Therefore suitable antigen and serum controls must be included before the results of these tests can be interpreted. Also unless

the same pooled complement is used throughout a series of tests comparisons cannot be made, since the deviability of different specimens of complement may vary considerably.[125]

promising but are beginning to displace those in present use. Hirst[126] recently discovered that the allantoic fluid of chick embryos infected with either influenza A or B virus was capable of agglutinating red blood cells.

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NEWER PROCEDURES

The accompanying table is designed to include only procedures which in our opinion are fully established and confirmed. Some new methods not only appear very

This phenomenon was utilized by this investigator to detect influenza virus in throat washings and to measure influenzal antibodies in serum. The practicability of this simple in vitro test was pointed out in a later

study.[127] The same phenomenon was observed independently by McClelland and Hare,[128] who confirmed the observations of Hirst. Nagler[129] has described a similar phenomenon with vaccinia virus.

Another in vitro test, referred to as the "bacterial agglutination" (B. A.) technic, was recently described by Roberts and Jones.[130] This test, which consists essentially in coating the cells of a suspension of bacteria with virus and observing the agglutination of such cells on the addition of the homologous immune serum, was used successfully in studies with St. Louis encephalitis and poliomyelitis viruses. Roberts and Jones observed that the bacteria exhibited greater suspension stability than the collodion particles used in the agglutination test previously described by Cannon and Marshall.[131]

Recently Goodner[132] developed a new in vitro technic called "collodion fixation" which permits detection of small amounts of virus or antibody. No literature on the application of this method has appeared.

Experiments are now in progress in the virus laboratory of the St. Louis Health Division to determine the practicability of these newer procedures.[133] A discussion of the hazards and difficulties likely to be encountered in the laboratory diagnosis of virus diseases will be published elsewhere.[134]

"VIRUS PNEUMONIA"

In recent years an increasing number of cases of acute infection of the respiratory tract associated with atypical pulmonary lesions have been reported. These infections have been variously described as acute influenzal pneumonia, pneumonitis, acute interstitial pneumonitis, atypical pneumonia, atypical bronchopneumonia of unknown etiology and most frequently "virus pneumonia." In spite of the meager positive results of laboratory studies, the latter name is now quite generally used both by the practitioner in verbal discussions and in many written reports. The diagnosis "primary atypical pneumonia, etiology unknown," recently suggested in an official statement[135] to the Surgeon General of the Army, appears to be the most suitable designation for this fairly well defined clinical syndrome and implies that an effort has been made to rule out the known bacterial as well as nonbacterial etiologic agents. The nonbacterial agents refer particularly to the viruses of influenza, psittacosis and Q fever. Although a number of attempts[136] have been made to isolate the causative agent, the etiology of primary atypical pneumonia is by no means established at the present time[137] and hence no specific laboratory test is now available.

Municipal Courts Building.

The Limit of Acclimatization for Man.—It is estimated that there are 10,000,000 inhabitants of this globe living at altitudes of 10,000 feet or more. In the mining camps of South America men live at 17,000 feet and work at 18,000 feet. There are monasteries in Tibet where the monks spend their lives at 17,000 feet. It is interesting to note that the miners in South America prefer to live at 17,000 feet and to walk up the additional 1,000 feet to work each day, rather than to live at 18,000 feet. Although an attempt was made to live at 18,000 feet it was abandoned, and these men moved down to 17,000 feet. This indicates that the limit for acclimatization for man is between 17,000 and 18,000 feet.—Gemmill, Chalmers L.: Physiology in Aviation, Springfield, Ill., Charles C Thomas, Publisher, 1943.

PERIPHERAL NERVE INJURIES DETERMINED BY THE ELECTRICAL SKIN RESISTANCE METHOD

I. ULNAR NERVE

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In previous papers a method was described by means of which areas of high and low electrical skin resistance can be quickly and accurately defined on all parts of the body.[1] This method was first applied to the delineation of areas of skin denervated by sympathectomy. These areas did not sweat and had a very high electrical resistance. A sharp line, usually less than ⅛ inch in width, separated the normal areas of low skin resistance from the affected areas of high resistance. Removal of the sympathetic ganglions at any given spinal level produced definite skin resistance patterns which closely conformed to the corresponding sensory dermatomes. This method made it possible to determine exactly the area affected by sympathectomy and the presence of regeneration of the sympathetic nerves.

In a later study with this method, well circumscribed areas of low electrical skin resistance were found in normal individuals at room temperature on the face, hands and feet and in the axillas and antecubital fossae. On the face the area had an oval shape and included the eyes, nose and mouth; on the hands it included the palmar surface and the distal parts of the dorsal surfaces of the fingers; on the feet it included the plantar surface and a marginal band of about 1 inch along the sides. In warm external temperatures and with any kind of sympathetic stimulation these areas of low electrical skin resistance on the face, hands and feet became larger, while in the cold and during sleep they became smaller. The possible uses of these areas for the objective study of peripheral circulatory and other disturbances have been discussed in our previous papers.

This method is now being used (1) to define cutaneous areas innervated by the peripheral nerves, (2) to define areas affected by trauma or sectioning of the peripheral nerves and (3) to determine the effects produced by nerve suture and spontaneous regeneration. The present paper deals only with observations made on the ulnar nerve. In the first part of this study we mapped the areas of skin which are affected by a temporary palsy of the ulnar nerve produced by an injection of procaine hydrochloride into the nerve at the elbow. In the second part we mapped the areas denervated by total or partial accidental sectioning of the nerve at various levels of the arm. In some instances the observations were made immediately after the nerve was sectioned and in others not until several months or even years later. So far we have not had sufficient

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From the Psychobiological Laboratory, Phipps Psychiatric Clinic, Johns Hopkins Hospital.
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1. Richter, C. P., and Woodruff, B. G.: Changes Produced by Sympathectomy in the Electrical Resistance of the Skin, Surgery **10**: 957-970, 1941; Facial Patterns of Electrical Skin Resistance, Bull. Johns Hopkins Hosp. **70**: 442-459, 1942. Whelan and Richter.[2]

time to follow the entire process of regeneration of the ulnar nerve from the time of suturing to full recovery. In all instances simultaneous observations were made on sensory changes accompanying nerve section and suture.

METHOD

For most of the following observations we used a small dermometer which was specially designed for this purpose.[2] It consisted of a small portable box which contained an ammeter, two variable resistances, a 4.5 volt battery and two lead wires and electrodes. One electrode, made of a small zinc disk soldered to a wire clip, was securely fastened to the lobe of one ear. This electrode remained fixed throughout the examination. A paste made of kaolin and saturated zinc sulfate solution established contact between the electrode and the ear, and a prick to the skin eliminated the resistance of the skin beneath this electrode. The movable electrode, a small zinc disk 1 cm. in diameter, was soldered at right angles to the end of an insulated 3 inch copper rod. By holding the rod in the hand, the operator could bring the flat surface of the disk into contact with the skin on any part of the body.

At the outset of an examination, the movable electrode was pressed lightly against the skin within an area suspected of having been denervated by peripheral nerve injury. By means of the variable resistance in the instrument the current flowing through the completed circuit was adjusted so that an ammeter deflection of only a few scale divisions was obtained. Then, while maintaining a close watch on the ammeter, the movable electrode was moved over the surface of the skin until an area of low skin resistance was reached, as indicated by a sharp deflection of the pointer across the ammeter scale. The electrode was then moved back and forth between areas of high and low resistance until the exact point of change was located. The change from low to high resistance usually occurred within a distance of ⅛ inch or less. By repeating this procedure in adjoining areas other points of sharp resistance change were determined and marked with a skin pencil. This process was continued until the entire area of high resistance was delineated. The points so obtained were then joined together. Areas were recorded on charts and in most instances the hands photographed.

In a warm external environment the resistance of the skin on normal parts of the body is usually very low as compared with that present on denervated areas. Under such conditions mapping tests can be made at once without further preparations. During the cold months of the year or at any other times when the patient is cold, the skin resistance on the normal areas may be as high as on the affected areas. It is necessary then either to heat the patient for a few minutes in a hot air cabinet or under a heat cradle or to give a subcutaneous injection of pilocarpine (1/10 grain [0.0065 Gm.]) or to give acetylsalicylic acid and hot water or tea. Such procedures reduce the resistance of the normal skin but have little or no effect on the high resistance of the denervated areas, thereby bringing out a sharp line of demarcation between them.

Heating the body also eliminates the normal hand pattern, which otherwise in some instances may be mistaken for parts of the pattern produced by the peripheral nerve injuries.

In many instances the skin resistance patterns were checked with the Minor starch-iodine sweating test. This test, however, does not usually give good patterns on the hand, particularly on the palmar surface.

On most persons simple sensory tests were made for pain and touch, the pin prick and cotton swab being used.

RESULTS

Patterns of High Electrical Skin Resistance Produced by Injections of Procaine Hydrochloride In and Around the Ulnar Nerve at the Elbow.

In these studies 4 to 5 cc. of a 1 per cent solution of procaine hydrochloride was infiltrated in and around the ulnar nerve at the elbow. Skin resistance and sensory tests were made every few minutes to determine the first appearance and the duration of the appearance of the areas of high electrical skin resistance and of the areas of anesthesia.

Usually within five minutes patterns of high skin resistance and anesthesia could be detected. For the first few minutes the outlines of the patterns were not sharply defined; later they became as sharp as those which bound sympathectomized areas. The areas of skin resistance and of anesthesia agreed very closely. They both disappeared after the lapse of thirty to forty-five minutes. Figure 1 shows the patterns that were found in 6 normal persons. The pattern showed some individual variations, but in general they agreed closely with the ulnar patterns which have been determined by other methods.

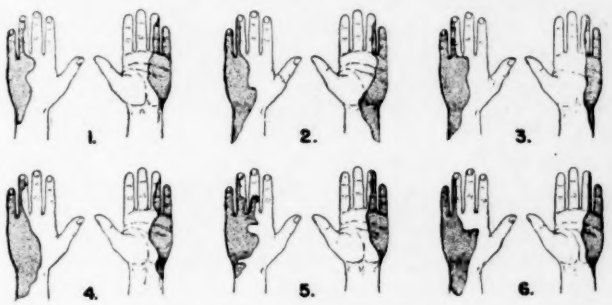

Fig. 1.—Ulnar nerve patterns of high electrical skin resistance following procaine injection of the ulnar nerve at the elbow.

Skin Patterns of High Resistance Found in Patients with Total or Partial Section of the Ulnar Nerve.[3]

CASE 1.—N. B., a white man aged 42, sustained a laceration of the ventral and ulnar aspects of the wrist on May 21, 1942. In the course of the injury, which was caused by broken window glass, the ulnar nerve was cleanly divided and the ulnar artery cut. On the same day the nerve was sutured. One month later, when the patient was sent to us for examination, the ulnar patterns of high electrical resistance shown in figure 2 (N. B.) were clearly defined on his hand. These patterns were almost the same as some of those shown in figure 1, which were found after injection of procaine hydrochloride

2. Whelan, F. G., and Richter, C. P.: Electrical Skin Resistance Technic Used to Map Areas of Skin Affected by Sympathectomy and by Other Surgical or Functional Factors, Arch. Neurol. & Psychiat. **49**: 454 (March) 1943.

3. These patients were referred to us by Lieut. Col. R. Glenwood Spurling of the Walter Reed General Hospital in Washington, D. C., by Dr. James G. Arnold Jr. of the University Hospital of the University of Maryland and by Drs. Herbert E. Sloan Jr. and Marcus M. Ravitch of the Johns Hopkins Hospital.

in and around the ulnar nerve at the elbow. Here again the areas of high electrical skin resistance corresponded almost exactly with the areas of anesthesia.

CASE 2.—J. W., a Negro aged 51, in May 1942 suffered a compound fracture of the left shoulder. An open reduction was performed. Ulnar palsy was noticed when the cast was removed. The patient was examined by us on October 10. At that time it was noticed that he had contractures of the long tendons of the fourth and fifth fingers, atrophy of the intrinsic hand muscles (except those supplied by the median nerve) and a complete loss of sensation over the ulnar field. It was found that he had a fairly typical ulnar pattern of high electrical skin resistance (fig. 2, J. W.). Clearly the nerve must have still been severed at this time. A skin mapping test made at the time of the fracture would have revealed at once the severance of the ulnar nerve.

CASE 3.—F. S., a Negro aged 45, sustained a stab wound in the right arm in the ulnar region just above the elbow. When he was brought to the hospital he had a complete palsy of the lower arm attributed to a tourniquet which had been in position on the upper arm for more than seven hours. According to the examinations made at that time, no nerve had been cut. Seven days later, dorsiflexion of the fingers and sensation began to return. Three weeks later the patient could pronate his forearm slightly but was unable to supinate it. Intrinsic muscles of the hand were almost completely paralyzed

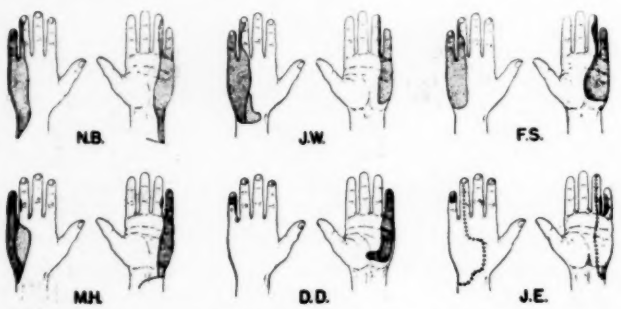

Fig. 2.—Ulnar nerve patterns of high electrical skin resistance following partial and total section of the ulnar nerve.

and flexion and extension of the wrist were almost entirely gone. Three months later the patient was sent to us for examination. Figure 2 (F. S.) shows the typical ulnar pattern of high electrical skin resistance that was found on the patient's hand at this time. It corresponded closely with the area of anesthesia. The ulnar nerve must have been either severely injured or actually severed by the stab wound. A skin resistance mapping test made at the time of the original surgical examination would have demonstrated the serious condition of the ulnar nerve.

CASE 4.—E. L., a white man aged 41, on Sept. 1, 1942 suffered a blow on the medial side of the upper third of the humerus, with a resultant ulnar palsy. Electrical skin resistance examination was made on December 29. A typical area of high resistance was found over the ulnar field. The high resistance also extended above the medial side of the arm, including the medial antibrachial cutaneous nerve and possibly the medial brachial cutaneous nerve up to the site of injury.

CASE 5.—K. F., a white man aged 26, on Feb. 19, 1942 received a bomb fragment in the medial side of the lower third of the humerus. There was a complete ulnar nerve palsy. On September 4 a neurinoma was excised and a transposition and end to end anastomosis were performed. An electrical skin resistance test was performed on December 30. An area of high resistance (about 5,000,000 ohms)) was found over the hypothenar eminence and over a narrow band on the ulnar side of the dorsum of the hand, the fifth digit and two small spots on the fourth digit. The remainder of the hand had a lower resistance (under 500,000 ohms). The area delineated corresponded well with the area of complete pain and touch anesthesia. This pattern is not as extensive as the typical ulnar field and therefore would indicate partial recovery.

CASE 6.—M. H., a white woman aged 21, accidentally cut her right wrist on a sharp edged vessel on Aug. 25, 1942. The wound was 8 cm. in length and was located on the ventral and lateral surfaces of the wrist 2 to 3 cm. above the hypothenar eminence. The ulnar nerve and artery and the long flexor tendons on the ulnar side of the wrist were cut. The nerve and tendons were sutured. When examined by us three months later, her hand showed a definitely constricted ulnar pattern. Figure 2 (M. H.) shows that the area of very high resistance included only the little finger and a narrow band along the edge of the hand on both the palmar and the dorsal surface. Areas of intermediately high resistance (light stipple) were found (1) on the inner surface of the fourth finger, (2) between the scar and the area of very high resistance and (3) on the dorsum which filled in most of the original ulnar pattern. (The high resistance area at this time was 3,600,000 ohms, while the area of low resistance was from 140,000 to 150,000 ohms.) These areas of very high and intermediately high resistance corresponded closely with areas of total and partial anesthesia respectively. It is clear that suture of the ulnar nerve had been successful and that part of the nerve had already regenerated.

CASE 7.—D. D., a white man aged 42, fractured his humerus and dislocated his shoulder on April 22, 1942. The shoulder was set at once and placed in a cast. Five weeks later when the cast was removed it was found that the patient had a complete nerve palsy. Five months later when he was examined by us his hand showed only a very small ulnar pattern, as may be seen in figure 2 (D. D.). On the dorsal surface the area of very high resistance included only the tip of the little finger and on the palmar surface the little finger and a narrow strip along the edge of the hand. It therefore appears that in the beginning the ulnar nerve must have been either partially or completely cut and in the meanwhile must have become at least partially regenerated.

CASE 8.—J. E., a white man aged 41, in July 1935 sustained a 3 cm. laceration on the ulnar side of the left wrist on the volar surface extending around to the dorsal surface. The ulnar nerve was cut at this point. He was first seen at the Johns Hopkins Hospital in February 1936. At this time he had a healed laceration with atrophy of the intrinsic hand muscles and a complete ulnar palsy and loss of sensation over the ulnar field. A nerve suture was performed. One year later he noticed returning sensitivity and could distinguish heat and cold but still had complete loss of tactile sensation. The muscles were atrophied and very weak. When examined by us in October 1942, six years after the nerve suture, his hand showed a small area of intermediately high resistance on the inner surface of the fifth digit and on the dorsal surface of the tip of the fifth digit. However, he still had an area of partial anesthesia over the entire ulnar field, as may be seen in figure 2 (J. E.). Thus the ulnar nerve had not completely regenerated over a period of six years. The sympathetic functions had apparently completely recovered long before the sensory functions returned to normal.

CASE 9.—R. S., a white man aged 36, sustained a laceration of the left arm and forearm on Aug. 17, 1939 in an automobile accident. He had a large U shaped wound on the ulnar side of the forearm about 4 cm. below the medial apicondyle. Distal to this there was another wound. When the patient first came to the Johns Hopkins Hospital in December 1939 he had a typical ulnar nerve palsy with muscular atrophy, contractures and hypesthesia. When examinaed by us three years later the hand showed a very small area of intermediately high

resistance on the inner distal surface of the fifth digit and over the dorsal surface of the tip. The remainder of the ulnar field showed low resistance, indicating recovery. The entire ulnar field showed hypesthesia. Here again there is seen a decided discrepancy between the rate of sympathetic and the rate of sensory recovery.

CASE 10.—A. H., a white man aged 48, injured his ulnar nerve at the elbow in an automobile accident in 1907. He was operated on for a fractured humerus but apparently the ulnar nerve was not sutured. When examined by us in December 1942 his hand showed no skin resistance patterns whatever. There was a well defined ulnar palsy with muscular atrophy and contractures and hypesthesia. In this case the sympathetics had entirely regenerated, while the muscle and sensory functions had only partially recovered.

COMMENT

The results of these observations show that in the electrical skin resistance mapping test we have a simple, accurate and practical method of defining areas affected by peripheral nerve injuries. One of its chief advantages is that its successful use does not depend in any way on the cooperation of the patient. Even in conscious, intelligent patients it is often difficult and time consuming to map areas of anesthesia, while in disoriented patients shocked by civilian or wartime accidents mapping of areas of anesthesia becomes almost impossible. In cases of suspected malingering the electrical skin resistance method supplies a more reliable test than the subjective report. In cases of severe fractures and the like in which nerves may become traumatized or sectioned the skin resistance mapping test should make it possible to determine at once the site and extent of nerve involvement. As will be shown in later papers and as was pointed out in the present paper, this method should help to determine the success of nerve sutures and to follow the progress of regeneration. With the combination of the accurate means of defining the nature of the lesion as well as the degree of functional injury, as indicated by the actual absolute skin resistance readings in ohms, it should become possible to determine which procedures speed up regeneration and which ones retard it. It should also be possible with this method to work out in more detail the interrelationship between the rate and character of regeneration of the autonomic and sensory nervous systems. The nature of sensory and sympathetic "overlap" which might occur as a result of diffusion from contiguous nerve fields is under investigation.

SUMMARY

1. By means of the electrical skin resistance mapping test and procaine injections of the ulnar nerve at the elbow, the ulnar field of sympathetic innervation was defined in 6 normal persons.

2. By means of this test the affected areas of skin were sharply delineated on 10 patients with ulnar lesions of recent and long standing produced by accidental cuts, intentional stabs, compression from fractures or by bomb and shell fragments.

3. The simplicity, accuracy and speed of the method make it useful for the exact examination of all types of peripheral nerve lesions, for the determination of the effects of nerve sutures and different kinds of treatment.

SUCCINYLSULFATHIAZOLE IN THE TREATMENT OF BACILLARY DYSENTERY

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The history of dysentery runs parallel with the history of wars. Through the centuries it has been the scourge of armies. Its morbidity has decided campaigns. It almost defeated the British at Gallipoli in 1915, when it was responsible for a high proportion of the 120,000 casualties from sickness in that area. Whenever troops are encamped in the field, even in training areas, this disease is apt to occur unless there is constant and unremitting attention to field sanitation.

During a six weeks period in the late summer of 1942 an epidemic of dysentery occurred in a large military organization encamped in the field in North Carolina. The epidemiology and source of this outbreak were studied by Sands and Riley.[1] The bacteriology of the epidemic has been investigated by Kuhns[2] and his co-workers. The bacteriologic studies of the hospital cases were made by Brown and Pohle.[3] It was clearly shown that the epidemic was fly borne and due to Shigella paradysenteriae Boyd-88.

The present paper concerns itself with the clinical aspects and treatment of the hospitalized patients. Two hundred and fifty-two soldiers from the organization concerned were admitted with dysentery during this period. Two hundred and twenty-five of the cases are used as the basis of this analysis.

CLINICAL PICTURE

The onset in the majority of cases was sudden with chills, fever, headache, backache, malaise, nausea, vomiting, cramping abdominal pain, tenesmus and diarrhea. In many instances the diarrhea became rapidly worse, and some soldiers stated that they had had fifty stools in the twenty-four hours prior to admission. The maximum number of stools observed in the hospital was fifteen in twenty-four hours and the average seven. The stools were watery, were greenish or yellowish brown, and frequently contained mucus. They were bloody in 18 per cent of the cases. Colicky abdominal pain was common (81 per cent) and often severe enough to make the men double up and groan with pain. Tenesmus was not severe and was present in only 21 per cent of the cases. Generalized abdominal tenderness of moderate degree was usual. Hyperperistalsis was fairly frequent, but distention occurred only occasionally. Fever was present in the majority (69 per cent). The highest temperature was 104.8 F. and the average maximal temperature was 100.8 F. Shaking chills were present only at onset, but chilliness during the febrile period was frequent (42 per cent). Weakness, listlessness and anorexia were common and were

From the Station Hospital, Fort Bragg, North Carolina.

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Lieut. Col. Dwight Kuhns, M. C., and the staff of the Fourth Service Command Mobile Laboratory made the results of their follow-up cultures available. First Lieut. Ivan W. Brown Jr., M. C., and Major F. J. Pohle, M. C., of the laboratory of this station hospital made the bacteriologic studies in the cases reported.

1. Sands, A., and Riley, H. M., to be published.
2. Kuhns, Dwight: The Control of Endemic and Epidemic Diarrhea, South. M. J., to be published.
3. Brown, I. W., Jr., and Pohle, F. J., to be published.

directly proportional to the height of the fever and the severity of the diarrhea. Early in the illness, prostration from fever and loss of fluids was great enough in some cases to require the parenteral administration of fluids. Fever persisted, as a rule, for from two to three days, and diarrhea usually disappeared after four days of treatment. The great majority of patients had less residual weakness than would be expected following an acute febrile illness with severe diarrhea. There were no complications and no deaths. Tables 1, 2 and 3 indicate the frequency and duration of some of the manifestations.

During the early period of the outbreak all patients were treated symptomatically with bed rest, a bland low residue diet and camphorated tincture of opium 8 cc. after each bowel movement until the diarrhea had decreased. In the cases of more severe involvement morphine was necessary.

At first, stool cultures were made from fresh specimens sent to the laboratory. However, early in the outbreak the rectal swab method advocated by Cruickshank and Swyer [4] was adopted with excellent results. This method is quick, is easily carried out and yields a much higher incidence of positive results than the usual method of stool collection.

TABLE 1.—*Incidence of Signs and Symptoms*

	Controls (136 Cases), per Cent	Succinyl-sulfathiazole (89 Cases), per Cent	Average (225 Cases), per Cent
Diarrhea	88.9	84.2	86.4
Cramping	75.0	88.7	81.8
Fever	66.9	71.9	69.4
Chilliness	44.8	39.3	42.0
General malaise	44.1	37.0	40.9
Headache	36.0	32.5	34.2
Nausea and vomiting	33.8	33.0	33.4
Tenesmus	13.2	30.3	21.6
Delirium	1.4	1.1	1.2
Tenderness	55.8	52.8	54.3
Hyperperistalsis	18.3	22.4	20.3
Distention	9.5	0.8	5.1

In the majority of instances cultures were made in selenite F broth and on Shigella-Salmonella agar (Difco) plates. These cultures were transferred to Kleigler's iron agar slants. Further differentiation of the organism was made by sugar fermentation and by agglutinations. Shigella paradysenteriae Boyd-88 was isolated from 36 per cent of the patients on admission, and this figure was increased somewhat by subsequent cultures. The leukocyte count during the acute phase of the illness ranged from 3,300 to 17,000 per cubic millimeter of blood. The majority of the patients had normal leukocyte counts. Leukopenia, however, was common (21.4 per cent). In this group the average ratio of polymorphonuclear leukocytes to lymphocytes was 55.5 to 41.2.

Succinylsulfathiazole (2-[*p*-succinyl aminobenzene-sulfonamide] thiazole), recently synthesized by Moore and Miller,[5] was used in the treatment of half of the later cases. All the early cases were treated purely symptomatically. Poth and Knotts [6] have reported the use of this compound in more than 100 cases presenting various intestinal lesions and acute intestinal infections. The oral administration of the drug exerts a decided bacteriostatic action in the bowel and can reduce the coliform organism from 100 million to 1 thousand per gram of wet feces in three to seven days.[7] The usual dosage is 0.25 Gm. per kilogram of body weight as an initial dose, followed by 0.25 Gm. per kilogram daily divided into six equal doses. In our cases this dosage schedule was continued until the patient's temperature had been normal for two days and until diarrhea had been absent for an equal period. It is essential to give an adequate dosage of opiates to check the diarrhea so that the drug will not pass through the bowel too rapidly. The compound is sparingly soluble in water and poorly absorbed from the intestinal tract so that its action is essentially in the bowel. The total urinary excretion is less than 5 per cent.[7] The blood level of succinylsulfathiazole was determined in a few of our cases. It was always less than 1 mg. per hundred cubic centimeters of blood. Since the bacteriostatic action of the sulfonamide compounds is due to the presence of the free amino radical on the benzene ring, it is probable that the mode of action of this drug is by its hydrolysis to succinic acid and free sulfathiazole in the intestinal tract.[8] The concentration of sulfathiazole so derived is from 50 to 200 mg. per hundred cubic centimeters of feces. These concentrations have been shown to be both bacteriostatic and bactericidal. The succinyl radical presumably inhibits the absorption of the drug from the upper intestinal tract.[8] After slow hydrolysis the active portion, sulfathiazole, is freed and reaches a high concentration in the large bowel. Under the influence of this drug the stools become "semifluid, small in bulk, somewhat gelatinous in appearance and relatively odorless." The only reactions are a mild perianal irritation and a tendency to slight diarrhea.[7] Kirby and Rantz [8] used this drug in the treatment of 5 dysentery carriers. The dysentery bacilli disappeared from the stools of all 5 carriers within one week of treatment and remained absent during the follow-up period of thirty to sixty days.

TABLE 2.—*Fever*

	Controls	Succinyl-sulfathiazole Treated Patients
Number of patients	79	59
Average maximum temperature	100.8	100.6
Average days' duration of fever	2.8	2.2

TABLE 3.—*Diarrhea*

	Controls	Succinyl-sulfathiazole Treated Patients
Number of patients	107	71
Average maximal number of stools	7.4	7.2
Average days' duration of diarrhea	4	4

PLAN OF STUDY

When the clinical diagnosis of bacillary dysentery was made, immediate rectal swab cultures were taken. Each patient admitted was given a number, and those with even numbers were treated symptomatically, as previously outlined. Those with odd numbers were given the same treatment but succinylsulfathiazole was also used. Tables 1, 2 and 3 indicate that the treated and control groups were entirely comparable. Eighty-

4. Cruickshank, Robert, and Swyer, Robert: Outbreak of Sonne Dysentery, Lancet **2**: 803 (Dec. 28) 1940.

5. Moore, M. L., and Miller, C. S.: Dicarboxylic Acid Derivatives of Sulfonamides, J. Am. Chem. Soc. **64**: 1572 (July) 1942.

6. Poth, E. J., and Knotts, F. L.: Clinical Use of Succinylsulfathiazole, Arch. Surg. **44**: 208 (Feb.) 1942.

7. Poth, E. J.: Succinylsulfathiazole, J. A. M. A. **120**: 265 (Sept. 26) 1942.

8. Kirby, W. M. M., and Rantz, L. A.: Treatment of Typhoid and Dysentery Carriers with Succinylsulfathiazole, J. A. M. A. **119**: 615 (June 20) 1942.

nine patients were treated with succinylsulfathiazole and 136 patients were used as controls. Follow-up cultures in the two groups covered a period of from one to three weeks with an average of eighteen days. Further cultures could not be made because this organization was ordered to another locality. All follow-up cultures were taken by the rectal swab method after sufficient time had elapsed for the drug to be eliminated from the bowel. Para-aminobenzoic acid was added to all culture mediums.

ANALYSIS OF RESULTS

The average duration of fever in the treated group was slightly less than in the controls, that is 2.2 as compared with 2.8 days. There was no significant difference in the daily number of stools or the duration of the diarrhea in the two groups. It was felt that the patients in the control group were on the whole more comfortable than those treated with succinylsulfathiazole. It was obvious that the drug produced no amelioration of symptoms, nor did it shorten the course of the illness in this outbreak. There was no evidence of drug toxicity in any of the treated cases.

In the control group of patients, 44 (32 per cent) had positive cultures on admission and 8 (18 per cent) of these had positive follow-up cultures after recovery.

TABLE 4.—*Results of Treatment*

		Results of Cultures		Percentage of Positive Follow-Up Cultures	
	Number	Admission	Follow-Up	Whole Group	Bacteriologically Positive Cases
Controls	136	44 positive 92 negative	8 positive 7 positive	....	18.2
Succinylsulfathiazole	89	38 positive 51 negative	1 positive* 0 positive	1.1	2.6

*This patient's culture was negative for three weeks. He was discharged from the hospital and was in the field (where original disease was contracted) for ten days before a positive culture was obtained. The possibility of reinfection must be considered.

Of the 92 control patients who had negative cultures on admission, 7 (7 per cent) had positive follow-up cultures. Fifteen patients (11 per cent) of the entire untreated group had one or more positive follow-up cultures. Of the 89 treated patients, 38 (43 per cent) had positive cultures on admission. The higher incidence of positive cultures in the treated group is probably the result of the rectal swab method of culturing, which was begun at about the time the decision was arrived at to use succinylsulfathiazole in treatment. Some of the patients reported as controls were admitted to the hospital prior to the use of succinylsulfathiazole in treatment when the rectal swab culture method had not been adopted. Only 1 (2.6 per cent) of these 38 patients had a positive follow-up culture and none of those originally negative later showed a positive culture. Of the entire group of 89 treated patients the incidence of positive follow-up cultures was 1.1 per cent. This is in striking contrast to 11 per cent in the untreated group. If the cases which were bacteriologically positive on admission are considered alone, the ratio of positive follow-up cultures is 18.2 per cent in the untreated group as compared to 2.6 per cent in the treated.

CONCLUSIONS

1. Two hundred and twenty-five soldiers ill with dysentery due to Shigella paradysenteriae Boyd-88 have been studied.

2. Succinylsulfathiazole produced no amelioration of the illness nor did it shorten its duration. This would be expected in an illness of only four days' duration.

3. The carrier rate in the bacteriologically proved cases, when succinylsulfathiazole was given, was 2.6 per cent and in a comparable untreated group 18.2 per cent.

SPECIFIC TREATMENT OF TYPHOID

THE INEFFECTIVENESS OF SULFATHIAZOLE AND IMMUNE SERUM

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Between Feb. 25 and March 21, 1942, 59 patients with typhoid were admitted to Provisional Hospital No. 3 in the Territory of Hawaii. All of the patients except 2 were children between the ages of 12 and 16, and all except 2 attended or were employed at the Washington Junior High School. Investigation by the public health authorities disclosed that a healthy intestinal typhoid carrier, employed as a food handler in the school, produced the epidemic by contaminating food eaten by the pupils at one meal. The clinical aspects of this epidemic were described by Hoagland and Fleming.[1]

All the patients were hospitalized in the same institution and all were under my control. All except 2 were in a similar state of nutrition, and all except 2 were infected by the same strain of Eberthella typhosa. The variables of age, nutrition, climate and strain of infecting organism were absent. In addition, four fifths of the patients entered the hospital in approximately the same stage of the illness (between the fifth and fourteenth days).

When this epidemic occurred there were no reports in the literature concerning the use of sulfathiazole in the treatment of typhoid. It was therefore decided to give sulfathiazole to some of the patients and to withhold the drug from a control group.

Sulfanilamide was stated to be of value in a series of 7 cases.[2] All were treated with azosulfamide and sulfapyridine; there were no controls. In 3 cases the drug was given at a time when spontaneous improvement might have been expected (on the twenty-eighth day in 1 case and between the thirty-sixth and fifty-seventh days and the eighteenth and twenty-fifth days in other cases). As a rule the drug was given over a period of five to ten days before improvement was manifest; hence it is questionable whether improvement was the result of the administration of the drug or was only concomitant with it. One of the patients received an antityphoid serum as well.

The use of sulfaguanidine in the treatment of typhoid was reported by Watt and Peterson.[3] Six patients were treated with 20 Gm. of sulfaguanidine daily for eight to ten days. No untreated patients were used as controls. The authors concluded that the drug had no effect on the course of the disease or on the disappearance of E. typhosa from the patients' feces.

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1. Hoagland, R. J., and Fleming, J. F.: Clinical Aspects of an Epidemic of Typhoid Fever, Hawaii M. J. **1**: 307 (May) 1942.

2. Harries, E. H. R.; Swyer, Robert, and Thompson, Noel: Sulfanilamide in Typhoid Fever, Lancet **1**: 1321 (June 10) 1939.

3. Watt, James, and Peterson, J. S.: Sulfaguanidine Noneffective in the Treatment of Typhoid Fever and Typhoid Carriers, Pub. Health Rep. **57**: 872 (June 5) 1942.

Hall [4] used sulfaguanidine to treat 5 patients with typhoid. Controls were not used. An initial dose of 0.1 Gm. of the drug per kilogram was followed by 0.05 Gm. per kilogram every four hours for one week. He believed that, although the small number of cases precluded the drawing of definite conclusions, his results indicated that sulfaguanidine was ineffectual in the treatment of typhoid-paratyphoid infections.

TABLE 1.—*Patients Without Specific Treatment*

Patient	Day of Disease Temperature Returned to Normal	Complication and Day of Onset
27	26	
28	47	Intestinal hemorrhage, slight, 48th day
29*	34	
30	17	
31	23	Febrile relapse 27th day
32	24	
33	39	
34	15	Febrile relapse, mild, 22d day
35	22	
36	26	
37†	29	
38	19	
39	20	
40	46	Intestinal hemorrhages, severe, 25th day; febrile relapse 30th day
41	34	
42	13	
43	15	
44	30	
45	19	
46‡	—	Intestinal hemorrhage, mild, 14th day
47	52	Intestinal hemorrhages, severe, 22d day
48	19	
49	20	
50	41	Intestinal hemorrhage, moderate, 25th day
51	28	
52	29	
53	27	

* Boy unassociated with the Washington School or any of its students.
† A woman aged 32 employed at Washington School.
‡ Died on the fifteenth day of illness of intestinal perforation.

There are many reports concernin, the use of serum obtained from horses previously inoculated with E. typhosa. It would be unprofitable to attempt to review all of them. The few reports available to me were analyzed.

Horse antiserum was used in the treatment of 73 patients during a milk borne epidemic of typhoid.[5] Twenty were treated during the first two weeks of their illness, 13 during the third week and 40 after the third week. There were no controls. The criterion of a favorable effect was the lowering of the temperature within forty-eight hours after administration of the serum. The temperature did not necessarily have to return to normal but had to remain lower than before the injection for at least seven days. The mortality rate was 9.5 per cent. The authors believed that beneficial effects of serum might be delayed seven days. A study of the temperature curves of the cases reported by Hoagland and Fleming [1] reveals that spontaneous recovery in typhoid is likely to take place within less than seven days from any given date after the second week; hence 53 of these patients might have been expected to have a spontaneous recovery at any time within a week after their admission to the hospital.

The use of horse serum was also reported by Robertson and Yu [6] and by Felix.[7] The former mentioned no controls and treated many of their patients in the third week of illness. The latter stated that fever was clearly shortened and suppressed in 23 cases but was uninfluenced in 20 cases and that patients might show a lessening of toxemia without an accompanying effect on pyrexia.

4. Hall, L. C.: The Use of Sulfaguanidine in Enteric Infections, J. Pediat. **20**: 328 (March) 1942.
5. Cookson, Harold, and Facey, R. V.: Value of Specific Serum in Treatment of Typhoid Fever, Brit. M. J. **1**: 1009 (May 15) 1937.
6. Robertson, R. C., and Yu, H.: The Serum Treatment of Typhoid Fever, Brit. M. J. **2**: 1138 (Dec. 5) 1936.
7. Felix, A.: Clinical Trials with a New Antityphoid Serum, Lancet **1**: 799 (April 6) 1935.

PRESENT STUDY

Sulfathiazole was given to 20 patients. Nineteen, weighing between 80 and 110 pounds (36 and 45 Kg.), received 4 Gm. of sulfathiazole daily for five days. One adult received 6 Gm. daily for five days.

Five patients were given injections of 150 cc. of pooled human serum obtained from previously inoculated persons. The donors of the serum had had an average of three series of inoculations (of three injections each) of typhoid vaccine. They had all received their last series of injections between two and five months prior to the withdrawal of serum.

"The typhoid protective titer of the pooled serum was between 100 and 1,000 minimum lethal doses; that is, 0.1 cc. amounts of serum protected all mice that were subsequently inoculated with 100 m. l. d. of a virulent typhoid culture, while 50 per cent of the animals, receiving the same amounts of serum, survived the inoculation of 1,000 m. l. d. of the test organism." [8] This degree of protection is "fair." [8]

Nine patients were treated with sulfaguanidine by private physicians before they entered this hospital. The doses used varied and, in my opinion, were deficient in most instances. One patient received this drug after admission. Although the administration of this drug was not under my control and its use in inadequate doses did not constitute a fair trial, it may be of some interest to include these cases in the presentation of results without drawing any conclusion.

Thirty-seven patients selected entirely at random were treated only symptomatically. These controls were chosen only because they happened to be in certain rooms. Three patients received two forms of treatment, as shown in table 3.

RESULTS

Results are presented in the accompanying tables, which are self explanatory. No toxic effects attributable to the use of the sulfonamide compounds were observed. The incidence of complications was about the same in treated patients and controls. Since none of the patients became typhoid carriers, the efficacy of medication in preventing the occurrence of the carrier state cannot be evaluated. All patients had at least three consecutive negative cultures of the urine and feces at six day intervals preceding discharge. The Territorial Board of Health has performed follow-up examinations of the feces with uniformly negative results.[9]

TABLE 2.—*Cessation of Fever*

Specific Treatment	Number of Cases in Group	Number of Days Before Temperature Returned to Normal		
		Average	Minimum	Maximum
Sulfathiazole	20*	30	16	54
Sulfaguanidine	10	36	20	81
Human serum	5†	42	28	81
None	27	27	13	52

* Of this group 2 patients are in the sulfaguanidine group also and 1 patient is in the serum group also.
† One patient in this group received sulfaguanidine during her illness and is in the latter group as well.

8. Army Medical School: Personal communication to the author.
9. Board of Health, Territory of Hawaii: Personal communication to the author.

COMMENT

The well known variability of the severity of typhoid makes the use of control cases essential in evaluating the efficacy of any drug used in its treatment. The fact that variables were reduced to a minimum in this study made comparison between controls and treated patients valid.

The most convenient index of the efficacy of treatment was the graphic temperature chart. It was believed that this standard was not only convenient but thoroughly reliable. It was the unanimous opinion of all physicians and nurses attending these patients that toxicity and fever were directly proportional. Therefore return of the temperature to normal was used as the criterion of recovery. On the other hand, it was noted that when patients had febrile relapses they did not appear to be ill. Temperatures became normal as early as the twelfth day and as late as the eighty-first day of illness, either by lysis over a period of three to seven days or abruptly within twenty-four hours.

The cessation of fever usually occurred independently of sulfathiazole therapy. Occasionally treatment and a drop in temperature were concomitant. If, here and there, a patient treated with sulfathiazole was studied without regard to untreated patients, one might erroneously infer that the drug had had a favorable effect on the disease. However, when time and time again the fever of control and of treated patients would abate during similar phases of the illness, it became apparent that at a certain time during the course of the disease the fever subsided and the patient felt well whether or not the drug had been used.

The use of sulfaguanidine was not under my control. Furthermore, insufficient doses were used. In the few cases in which dosage approached adequacy, no beneficial effects were observed. It would seem illogical to use in a blood stream infection a drug whose effect is largely confined to the intestine.

Early administration of serum in such diseases as diphtheria and pneumonia is considered to be of great importance. Typhoid, however, is usually not diag-

TABLE 3.—*Patients Receiving Specific Treatment*

Patient	Day of Disease Treatment Was Begun	Day of Disease Temperature Returned to Normal	Days Elapsing Between Cessation of Treatment and Onset of Normal Temperature	Complication and Day of Onset	Comment
			Patients Receiving Sulfathiazole		
1	14	41	23	.....	4 Gm. daily for five days
2	15	39	20	Intestinal hemorrhages, severe, 19th day	4 Gm. daily for five days
3	12	28	12	.....	4 Gm. daily for five days
4	17	37	16	Periostitis 24th day	4 Gm. daily for five days
5	15	33	14	.....	4 Gm. daily for five days
6	8	25	14	.....	4 Gm. daily for five days
7	11	32	17	.....	4 Gm. daily for five days
8	15	54	35	Intestinal hemorrhages, moderate, 20th day	A man aged 27, weighing 130 lb., no connection with Washington School, received 6 Gm. of sulfathiazole daily for 5 days
9	16	22	2	.....	4 Gm. daily for five days
10	20	29	5	Febrile relapse 29th day	Received sulfaguanidine before admission
11	5, 17	23	14, 2 (14 after first course and one day after 2d course)	.....	Received 3 Gm. of sulfathiazole daily for 5 days before admission (starting on the 5th day of illness), and 4 Gm. daily for 5 days after admission, starting on the 17th day; received sulfaguanidine before admission also
12	12	16	0	.....	4 Gm. daily for five days
13	6	22	12	.....	4 Gm. daily for five days
14	2	29	16	.....	Received sulfathiazole for 12 days before admis ion, dose not known; no sulfathiazole given after admission
15	13	22	5	.....	4 Gm. daily for five days
16	10	22	8	.....	4 Gm. daily for five days
17	15	27	8	.....	4 Gm. daily for five days
18	11	51	38	Febrile relapse 60th day; toxic psychosis	Received 4 Gm. of sulfathiazole daily for 3 days; received serum also
19	20	22	0	.....	4 Gm. daily for five days
58	7	..	..	.....	Died on 20th day of illness; 4 Gm. daily for five days
			Patients Receiving Sulfaguanidine		
10*	12	23	12	Febrile relapse 29th day	3 Gm. daily for six days
11*	13	23	7	.....	6 Gm. daily for three days
20*	13	54	33	Toxic psychosis	8 Gm. of sulfaguanidine daily simultaneously with 5 Gm. of sulfadiazine daily for two days, preceded by 4 Gm. of sulfanilamide daily
21*	9	30	13	.....	3 Gm. daily for nine days
22*	9	20	5	.....	6 Gm. daily for seven days
23*	12	31	12	Febrile relapse 46th day	1.5 Gm. daily for eight days
24*	11	32	3	.....	2.5 Gm. daily for nineteen days
25*	9	34	20	.....	3.5 Gm. daily for six days
26*	10	34	22	Febrile relapse 47th day	8 Gm. of sulfaguanidine, accompanied by 6 Gm. of sulfadiazine daily for two days
53	20	81	58	Intestinal hemorrhage, moderate, 29th day; toxic psychosis, severe, 33d day	Received serum on 13th day of illness, and 4 Gm. of sulfaguanidine daily for three days beginning on 20th day of illness; she was the sickest patient of those who survived
			Patients Receiving Serum		
18	13	51	38	Febrile relapse 60th day; toxic psychosis	400 cc. of serum
54	13	81	68	Intestinal hemorrhages, moderate, 29th day; toxic psychosis, severe, 33d day	150 cc. of serum
55	11	33	22	.....	150 cc. of serum
56	19	37	18	Deafness, cause undetermined	150 cc. of serum
57	26	31	5	Febrile relapse 44th day	150 cc. of serum
59	18	28	10	.....	150 cc. of serum

* Given by private physician before patient's entry into the hospital.

nosed until the patient has been ill at least five to ten days. Therefore serum could rarely be used early. All patients in my series who received serum were treated on or after the eleventh day of illness. A stimulating dose of vaccine two to three weeks before the donors were bled would have produced a serum of higher titer.[8] However, the occurrence of a typhoid epidemic is unpredictable; hence previously inoculated donors cannot be reinoculated before its outbreak. The donors used had received many inoculations and had fortunately received their last series of injections relatively recently.

The dose of serum employed was large, fifteen hundred times the amount that protected all mice inoculated with 100 minimum lethal doses of a virulent typhoid culture and 50 per cent of the mice inoculated with 1,000 minimum lethal doses.

SUMMARY AND CONCLUSIONS

1. Fifty-nine patients with typhoid were hospitalized simultaneously. All except 2 were between 12 and 16 years of age, and all except 2 were infected by the same strain of Eberthella typhosa.

2. The administration of sulfathiazole did not affect the course of the illness, complications, mortality rate or occurrence of the carrier state.

3. The use of serum obtained from previously inoculated persons was valueless.

PYURIA OF THE NEWBORN TREATED WITH SULFATHIAZOLE

A REPORT OF THREE CASES ILLUSTRATING DIFFERENT ASPECTS OF THE SYNDROME

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During the neonatal period changes take place very rapidly in the anatomy and physiology of the child. These changes are often reflected in those disease pictures peculiar to this period of life. Examples of such conditions are tetany of the newborn, paroxysmal tachycardia, pyloric stenosis and the condition we are describing in this communication, namely pyuria of the newborn. In all these conditions the change from fetal to extrauterine existence, with the sudden alteration in physiologic processes this entails, may easily account for disturbances in the smooth functioning of the various organs. It is our purpose in this communication to reemphasize this observation and to report 3 cases of pyuria of the newborn treated with sulfathiazole.

The newborn child's urine may contain casts and cellular elements in the absence of disease.[1] These usually clear with the ingestion of large amounts of fluid.[2] However, there are reports in the literature which suggest that during this period of relative anuria the urinary tract may furnish an especially good focus for infection.[3] That physiologic changes peculiar to this period of life modify the disease picture of pyuria is also suggested by the fact that, unlike what is observed in a slightly older group, pyuria in the newborn is more frequently observed in the male. It is a relatively benign disease and recurrences seem to be infrequent.

Although the disease was first described by Kovalesky and Moro[4] in 1901, Happ[5] could find only 37 case reports when he summarized the literature through 1932. The urine of newborn infants is now examined more frequently, so that the diagnosis is being made more often. In 1935 Craig[3] reported observation on 61 newborn children, of which 53 showed definite pyuria.

The 3 cases which form the subject of our paper were recognized over a period of seven months in a pediatric service which does not have any direct affiliation with an obstetric hospital. They are being reported because they illustrate so well several different aspects of the syndrome pyuria of the newborn.

CASE 1.—*Illness started at 10 days of age with resulting uremia and difficulty in feeding. Pyuria found to be due to atypical Escherichia coli. The clinical picture was complicated by anemia of fetal erythroblastotic origin. The child was given Rh negative transfusion and sulfathiazole. The urine was clear after two and one-half weeks except for occasional leukocytes and a trace of albumin.*

S. H., a boy, admitted to the Mount Sinai Hospital at 6 weeks of age because of poor feeding and failure to gain weight, had been born at term weighing 6 pounds 5 ounces (2,870 Gm.). He was circumcised at 1 week without difficulty. At 10 days of age he developed fever and his eyes were noted to be puffy. When he was 3 weeks old there was an episode of twitching of the arms and legs which responded to calcium. He had several mild attacks of diarrhea. At 6 weeks of age he was hospitalized weighing only 6 pounds (2,728 Gm.). He was a poorly nourished child with a mild upper respiratory infection. The temperature was 102 F. There was an icteric tinge to the skin. The liver edge and tip of the spleen were both 2 cm. below the costal margin. The umbilical stump was everted but clean. The penis was that of a normal circumcised male infant. The hemoglobin was 45 per cent, red blood cell count 2,030,000 and white blood cell count 49,600 with 57 per cent polymorphonuclear cells. No nucleated red blood cells were seen. The red cell fragility test was normal. The icterus index was 18 (water) and 12 (acetone). Rh studies showed the mother to be Rh negative and the child Rh positive. The urine observed on admission was cloudy, the specific gravity was 1.010, albumin was 1 plus and the sediment was loaded with pus cells. On culture atypical Escherichia coli was recovered. This organism did not ferment lactose but did ferment with acid and gas production maltose, sucrose, glucose and mannite. This same organism was grown from a urine obtained four days later. Blood culture on admission was sterile. Blood chemistry showed evidence of uremia: urea nitrogen 112 mg. per hundred cubic centimeters, carbon dioxide 27.4 volumes per cent, calcium 6.9 mg. per hundred cubic centimeters and phosphorus 7.5 mg. per hundred cubic centimeters; total protein, 8.2 Gm. per hundred cubic centimeters. The child was given intravenous fluids, several transfusions of Rh negative blood, sulfadiazine for twenty-four hours and then sulfathiazole. The drug was continued for one month, during which time blood levels of between 5 and 10.1 mg. per hundred cubic centimeters and urine levels of 64 to 98 mg. per hundred cubic centimeters of free sulfathiazole were attained. After forty-eight hours the patient's temperature fell to normal and twenty-four hours later there were many fewer leukocytes in his urine, though albumin was still present. The urine slowly cleared and after two and one-half weeks, although albumin was still present, only a rare white blood cell was noted. At that time the blood chemistry had changed as follows: the urea nitrogen was 14 mg. per hundred cubic centimeters, carbon dioxide 44.2 volumes per cent, calcium 11.1 mg. per hundred cubic centimeters and phosphorus 5.7 mg. per hundred cubic centi-

From the Pediatric Service of the Mount Sinai Hospital.

1. von Reuss, A. R.: The Diseases of the Newborn, New York, William Wood & Co., 1921.
2. Campbell, M. F., quoted by H. T. Nesbit in discussion on Conrad, C. E.: South. M. J. **31:** 640 (June) 1938.
3. Craig, W. S.: Arch. Dis. Childhood **10:** 337-354 (Oct.) 1935.
4. Kovalesky and Moro: Klin. therap. Wchnschr. **50,** 1901.
5. Happ, W. M.: California & West. Med. **51:** 166-169 (Sept.) 1939.

meters. After six weeks the only abnormal finding in the urine was a faint trace of albumin. The jaundice observed on admission disappeared in seven days. Coincident with the improvement already noted the child began to take his feedings better, so that at the end of three and one-half weeks he had gained 15 ounces (425 Gm.). When discharged after six and one-half weeks he weighed 7 pounds 6 ounces (3,345 Gm.). He looked well, his liver and spleen were just barely palpable and his hemoglobin was 85 per cent.

CASE 2.—*Child admitted at 3 weeks of age with fever, jaundice, pyuria, Escherichia coli sepsis and bacilluria. This was possibly the result of a nursery infection. He was treated for ten days with sulfathiazole. Drug was stopped because of toxic symptoms. Urine was clear of pus cells after four weeks.*

J. B., a boy admitted to the Mount Sinai Hospital at 3 weeks of age because of fever and jaundice, was born at term, weighing 9 pounds 1 ounce (4,110 Gm.), after a seventeen hour labor. He developed fever on the third day of life but this quickly subsided, so that circumcision was performed on the eighth day and he was sent home two days later. On the fifteenth day he was fretful, but four days later, when seen by a physician, he had symptoms of coryza and a temperature of 102 F. The following day he was afebrile but passed a number of loose green stools. On the day of admission jaundice was noted. It was reported that 2 other infants who were in the nursery at the time this child first developed fever were subsequently hospitalized elsewhere, one with a gastroenteritis and the other with jaundice and Escherichia coli sepsis. When admitted the patient was afebrile, moderately well developed and jaundiced. He weighed 9 pounds 2 ounces (4,140 Gm.). His throat was slightly reddened. The liver edge could be felt 1 cm. below the costal margin, but the tip of the spleen was not palpable. The umbilical stump was clean. The penis was that of a normal circumcised newborn infant. The hemoglobin was 88 per cent, the red blood cells were 5,000,000 and the white blood count was 36,200 with 76 per cent polymorphonuclear cells. No nucleated red blood cells were seen. The icterus index was 48 (acetone method). It was found that the Rh factor was not responsible for the jaundice. Catheterized urine obtained on admission was cloudy, was positive for bile and albumin and contained many clumps of leukocytes and bacteria. On culture Escherichia coli was recovered from the urine and blood stream. Urine culture four days later again revealed Escherichia coli. Blood culture repeated at the end of the first week was sterile. On admission the blood urea nitrogen was 24 mg. per hundred cubic centimeters. The cephalin flocculation test was negative. The child was given sulfathiazole orally for ten days. Blood levels of 3.9 to 9.8 mg. per hundred cubic centimeters were attained. On one occasion, when the blood level was 7.3 mg. per hundred cubic centimeters, the urine contained 180 mg. of free sulfathiazole per hundred cubic centimeters. The morning after admission the temperature again rose to 102 F. and thereafter for five days slowly fell, fluctuating between 100 and 102 F. Despite this the jaundice deepened, so that on the sixth day the icteric index was 160 (water) and 100 (acetone). Thereafter it rapidly cleared and four days later was normal. The pyuria persisted and, though on the eleventh hospital day there were still a moderate number of clumped leukocytes in the sediment, chemotherapy was stopped. This was done because the child had become extremely drowsy and the hemoglobin had fallen to 60 per cent. Although he continued afebrile and slowly became more alert, one week later the urine still contained a faint trace of albumin and a moderate number of leukocytes, some of which were in clumps. At the beginning of the fifth week the urine was clear except for a faint trace of albumin. When discharged at the end of six and one-half weeks the child weighed 9 pounds 11 ounces (4,394 Gm.), was alert and on physical examination was normal. He was reexamined three months later in the follow-up clinic. It was reported that he had been well, he had gained almost 6 pounds (2,728 Gm.) and, except for a very faint trace of albumin, the urine was normal.

CASE 3.—*Illness started with fever at 13 days of age, five days after a ritual circumcision with resultant local inflammatory reaction. Pyuria was associated with Escherichia coli and an enterococcus. He was treated for fifteen days with sulfathiazole, at which time the urine was clear except for an occasional leukocyte. After four weeks the urine was entirely clear.*

M. K., a boy admitted to the Mount Sinai Hospital at 2 weeks of age because of fever, was born after a prolonged labor with the aid of forceps, weighing 6 pounds 15 ounces (3,153 Gm.). On the eighth day of life a ritual circumcision was performed. Two days later the glans penis was noted to be dark blue. On the thirteenth day of life he developed fever. On admission he was a vigorous, well developed and well nourished infant weighing 7 pounds 2 ounces (3,231 Gm.), with a temperature of 104 F. The abdomen was slightly distended. The umbilical stump was clean. The penis was red about the glans with some crusting over the meatus. The corona was red and indurated. Hemoglobin was 70 per cent, and white blood cells were 24,000 with 85 per cent polymorphonuclear cells. The admission urine contained some albumin, numerous leukocytes and a few red blood cells. Culture of a clean catch specimen grew out an Escherichia coli and enterococcus. When repeated one week later both these organisms were again recovered, but after two weeks only the enterococcus and Staphylococcus aureus A were grown. Blood culture was sterile. Urea nitrogen was 23 mg. per hundred cubic centimeters. Sulfathiazole was given orally and continued for fifteen days. Blood levels of 3.5 to 3.9 mg. per hundred cubic centimeters were attained. Within twelve hours the temperature was normal and remained so. During the first week the urine continued to contain many white blood cells, but when the drug was stopped one week later there was only a rare cell in the urine. However, it was not until almost two weeks later, four weeks after the onset, that the urine was entirely free from cells. The inflammation of the penis subsided a few days after admission, and when the child was discharged after five weeks he was well and had gained 2 pounds (907 Gm.). He was reexamined six and one-half weeks later, at which time the urine was normal except for a faint trace of albumin and he was symptom free.

COMMENT

As already mentioned, Craig [5] reviewed the case histories of 53 newborn infants whose urine contained 5 to 140 white blood cells per high power field. Two thirds of these were boys. The onset of their illness was usually indefinite, though he found prolonged anuria, especially when accompanied by fever, to be very suggestive of a urinary infection. However, as a rule there was little in the clinical picture to direct attention to the genitourinary tract, and systemic signs predominated. Fever was common, although a few cases had an afebrile course. Convulsions were of grave significance. Recovery was usual. The average duration of illness when treated with fluids and diuretics was six weeks. Recurrence was noted rarely. The subsequent general health of these children was not impaired. Sauer,[6] as a result of a study of 12 cases, thought that a nonthriving newborn male infant with gastrointestinal symptoms was the most common clinical picture. His cases responded within six weeks to diuresis and alkalization of the urine.

The 3 patients present an element of interest in that they were all boys and each showed symptoms before they were 3 weeks of age. Case 3 is most easily understood and is representative of cases of this syndrome which have been reported.[7] The onset of fever a few

6. Sauer, L. W.: Neonatal Pyelitis, J. A. M. A. **85**: 327-329 (Aug. 1) 1925.
7. Paterson, Donald: Lancet **2**: 1186 (Nov. 28) 1931.

days following an infected circumcision should quickly suggest the possibility of an ascending urinary tract infection. The contact of patient 2 with 2 other children during the immediate neonatal period who later became ill, one with a gastroenteritis and the other with an Escherichia coli sepsis and jaundice, suggests strongly the possibility of a nursery infection and hematogenous spread to the urinary tract. Patient 1, who was admitted because of failure to gain weight after a number of formula changes and some diarrhea, comes closest to presenting Sauer's typical picture of pyuria of the newborn. Although the disease is in general benign, this case with the development of severe uremia serves to emphasize some of its potential dangers.

The occurrence of jaundice as a complication of pyuria has been pointed out by many observers and is of interest as it may be a dominating symptom of the clinical picture. It is presumed to be due to focal necrosis of the liver.[8] It may be present as a part of a severe general sepsis, but, as has been noted by Finkelstein,[9] even though very deep jaundice is evident it may disappear with great rapidity. An example of this type was observed by one of us. A boy developed gastrointestinal disturbance at the age of 3 months, became very deeply jaundiced and had high fever. An examination of the urine in a test tube showed that a third of its volume was pus. The culture of the urine showed Escherichia coli. Blood culture was sterile. Under alkalizing therapy the child recovered, though it was several months before the urine was entirely free from pus. The child was carefully followed for many years and never again showed any urinary disturbance. At the age of 17 years he was perfectly well. Of interest was the enormous amount of pus in the urine, the depth of the icterus and the relatively rapid recovery.

Two of our 3 patients were jaundiced. In case 2 with sepsis, jaundice and no apparent focus of infection, the occurrence of icterus immediately led to the suspicion of a renal involvement. In case 1 the jaundice was probably unrelated to the urinary tract infection but was rather a result of erythroblastosis fetalis. The importance of making this distinction is obvious if transfusions are to be given.

All of these patient's leukocyte counts were elevated and reflected their infection. Their urine showed albumin and great numbers of pus cells often in clumps. In this small group, like most of the cases already reported, Escherichia coli was the offending organism. Because of this, sulfathiazole was given as well as other supportive measures.

The so-called atypical B. coli recovered from patient 1 has been described in that case report. That there are many strains of Escherichia coli, each of which has a slightly different behavior, has been recently emphasized in studies of the effectiveness of sulfonamides.[10] It has been shown that although sulfathiazole is effective against all strains of the organism, the concentration of drug needed before this becomes apparent varies from strain to strain. With this in mind an in vitro test of the susceptibility of the organism recovered in case 2 against sulfathiazole was performed for us by Dr. Lotte Strauss. She reported that 2 mg. of sulfathiazole per hundred cubic centimeters was found to exert a good bacteriostatic action on a broth culture inoculated with 2 drops of a 10-8 suspension of organism and read after twenty hours' incubation at 37 C.

That sulfathiazole is effective in this disease is apparent when it is recalled that in the 2 cases treated for two weeks or more there was definite improvement at the end of the second week. At that time only an occasional pus cell was found in the urine. This contrasts strikingly with the five to six weeks needed for recovery before the use of sulfathiazole.[11] Newborn infants tolerate the drug well. The dosage used with these children varied between 0.1 and 0.2 Gm. per kilogram of body weight in twenty-four hours. Although the medication had to be stopped in case 2 after ten days because of the pronounced lethargy of the patient, it is not at all clear that this was not the result of cholemia. Even with this shortened course of chemotherapy the drug was probably effective in helping to cure the sepsis.

Because some of these cases have been associated with organic obstruction to the urine outflow,[3] several attempts were made in each of the 3 children studied to visualize the upper urinary tract with intravenous pyelography. Not one of these was successful, chiefly because of gas in the intestinal tract. However, it is unlikely that the majority of patients have very severe obstructions, since without surgical intervention the greater proportion of patients get well. Stasis due to some growth disturbance or nervous imbalance, perhaps as a result of local immaturity, would seem to fit the clinical picture better.

In the few fatal cases the pathologic changes have been slight. They have been most often found in the kidney substance. A suppurative interstitial pyelonephritis was found in a number of cases by Wilson and Schloss [12] and also by Craig.[3]

SUMMARY

Of 3 cases of pyuria occurring in newborn boys, 1 was associated with uremia and failure to gain weight, 1 with jaundice and Escherichia coli sepsis and 1 probably was secondary to an infected circumcision. All boys were treated with sulfathiazole and recovered. The drug seemed to accelerate this recovery. The physiologic changes taking place in the neonatal period appear to be conducive to the peculiarities of urinary tract infection in this age group.

1097 Park Avenue.

8. Holt, L. E., and McIntosh, Rustin: Holt's Diseases of Infancy and Childhood, ed. 10, New York, D. Appleton & Co., 1933, p. 669.
9. Finkelstein, H.: Säuglingskrankheiten, ed. 4, Amsterdam, Elsevier, 1938, p. 798.
10. Helmholz, H. F.: J. Urol. **45**: 135-145 (Jan.) 1941.
11. Craig.[3] Sauer.[5] Paterson.[7]
12. Wilson, J. R., and Schloss, O. M.: Pathology of So-Called "Acute Pyelitis" in Infants, Am. J. Dis. Child. **38**: 227 (Aug.) 1929.

Diagnosis of Gout.—Gout is a distinct clinical entity and should be differentiated clearly from the other arthritides. It is most likely that many cases of nongouty joint diseases were mislabeled gouty rheumatism in ancient and medieval times. This error should be committed on a large scale no longer. "Confronted, then, with a suspected case of gout, whether acute or chronic, what shall be our way of approach? Not the easy and hazardous path of lightning diagnosis affected by those who plume themselves on their so-called clinical 'instinct,' but the slow laborious route of clinical 'observation' that leads more surely to the vantage ground of the truth, this assuredly in all diseases, but in none more so than in joint disorders, whose outward resemblances so oft hark back to inward disparities." —Talbot, John H.: Gout, New York, Oxford University Press, 1943.

TREATMENT OF ANKLE SPRAIN

OBSERVATIONS IN MORE THAN FIVE HUNDRED CASES

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Ankle sprains may cause much disability, and often do, in military, industrial and other activities. Observations on various types of treatment in over 500 cases closely studied are presented. More than 200 of the patients were treated with injection of procaine hydrochloride solution and over 200 were strapped with adhesive tape. Sixty-eight received either no treatment or cold and hot packs or an elastic bandage for support.

The patients treated were men in active military service mostly in the late teens and twenties, although some were in the fourth, fifth and sixth decades. Eight women were treated. All degrees of sprain from minor to severe were seen, but in each case the condition was sufficient to cause the man to seek relief either immediately or within the first day or so.

The most common ligament sprained was the anterior talofibular, which occurred in over 90 per cent. Other ligaments in order of frequency and usually in association with the foregoing were the calcaneofibular, anterior inferior tibiofibular, medial or deltoid posterior talofibular and posterior inferior tibiofibular.

Roentgenograms were made almost routinely. No cases of fracture, including sprain fracture, are included. Diastasis of the lower tibia and fibula was not demonstrated even though local signs pointed to injury of the tibiofibular ligaments.

Various treatments were used for comparison. Over 200 patients were strapped with adhesive tape, some of whom were sent immediately to duty and the others were instructed to limit weight bearing and protect the ankle by either complete bed rest or by use of crutches or cane. Bed rest without weight bearing for a day or more with initial cold applications and later hot to reduce swelling was tried in 22 cases. Twenty-eight patients were given only an elastic bandage support, while 18 with mild to moderately severe sprains were given no treatment and both latter groups were sent back to duty immediately.

More than 200 patients received local injection of procaine hydrochloride and with but a few exceptions were sent to duty immediately.

The technic of local injection has been described by Leriche[1] and others. Fracture is excluded by radiographic study. The sprained ligaments indicated by tender points are determined by palpation. An antiseptic is then applied to the skin. Two per cent procaine hydrochloride solution without epinephrine is used routinely and with it a wheal is made in the skin over the site of injury with a fine needle. The latter is replaced by a larger needle and the underlying injured ligament is injected. All tender points, whether proximal, distal or intervening portions of the ligament, are injected. A search is then made for tender areas in other ligaments and these are each carefully injected until no tender or painful areas remain either with palpation or ankle and foot motion. The amount of procaine solution varies from around 10 to 20 cc. There is no hesitancy to use an ounce or more if necessary. Next an elastic bandage is wrapped snugly around the ankle, and the patient is requested to walk around the room. If any pain is experienced, further injection is done. The patient is then returned to activity with instruction to use and move the foot and ankle normally, except for running and jumping. Also it is stressed that while sitting as at a desk or table, the foot should be moved and not kept immobile in one position even for short periods. The elastic bandage is to be removed and rewrapped by the patient in one to two hours to prevent possible circulatory constriction. Daily and periodic return for check-up is required in all cases.

RESULTS AND COMMENT

Invariably patients whether with moderate or severe sprain, and almost irrespective of the type of treatment given, who were immediately sent back to routine activity and use of the part did much better than those who were put at rest for a few days with limited or no use of the part. The ones who were inactivated for one or more days by either being put to bed for cold and then hot applications or having ankles taped and cautioned to bear limited or no weight on the leg with the aid of crutches or cane were often disabled for periods of a few days to two or three weeks. One patient was disabled eight weeks. The ankles in the latter cases usually remained swollen, tender, stiff and painful, and only gradually did these conditions subside.

The patients who either received no local treatment or were given only an elastic bandage for support but were returned immediately to duty to use and move the part had remarkably little disability, which, if any, lasted not more than a few days. This was also true for the majority of patients who were only taped and sent back to duty immediately. Swelling, pain and stiffness rapidly disappeared, and disability of longer than two to three days was not common if the man continued his weight bearing and moved the ankle as instructed.

Injection of procaine hydrochloride solution and immediate return to duty gave routinely the best results. Disability was entirely absent in many and rarely lasted over twenty-four or forty-eight hours in the others. Several patients were intentionally inactivated with bed rest and crutches after injection for several days, and these had somewhat similar prolonged disability periods to patients who were treated with other local methods and kept inactive. A few apprehensive patients failed to follow instructions of continued use and motion after injection, and these also recovered slowly. Patients who had some complication, such as an underlying chronic arthritis of the ankle or a pulled muscle (usually peroneal), experienced delayed recovery. Some patients were not permitted to return to hazardous activity, such as parachute jumping, for a week to ten days even though they felt able to.

Pain rarely recurred after injection, and in no case was reinjection necessary. Motion of the ankle on the day following injection was often normal or nearly so. Forced passive motions, especially inversion and eversion, were apt to be painful for several days. Swelling was less the next day and progressively decreased, usually disappearing even in the severe cases within five to ten days. Tenderness of injured ligaments to

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1. Leriche, R.: The Problem of Osteoarticular Diseases of Vasomotor Origin, J. Bone & Joint Surg. **10:** 492, 1928; Des règles à suivre dans le traitement des fracture articulaires par infiltration novocainique des ligaments et mobilisation active immédiate, ibid. **45:** 873 (June 12) 1937. Leriche, R., and Arnulf, G.: Treatment of Sprains by Interligamentary Injection of Novocain, Am. J. Surg. **32:** 45, 1936.

palpation lasted, on an average, three to five days, even though there was no pain with active motion. Ecchymosis, local or diffuse, over foot and toes often lasted seven to fourteen days.

Success of the injection procedure depends on two factors: first, total elimination of pain and tenderness by complete adequate initial intraligamentous injection and, second and more important, continued use and motion of the foot and ankle. If the injection fails to relieve pain the patient may limp and not use the part normally, or if he is apprehensive and does not use or move the part as instructed, stiffness, swelling and pain result and persist.

It appears that, by maintaining active use and motion, circulation is improved, tissue metabolism and repair are thus enhanced and extravasated blood and serum tend to be mechanically expressed from the region; hence the swelling and stiffness with resultant pain consequent to stasis are materially reduced. Leriche explained the benefit of local injection for sprains on a basis of eliminating pain impulses and thus preventing the vasomotor change, which at first is a passive vasodilatation and later active. This explanation is not the sole answer, for it does not explain the excellent results which can be obtained by other methods, such as taping, in cases in which no injection is done but in which, if immediate and continuous use and movement of the part are done, recovery is rapid.

Many of these patients have been seen and examined after several months and all had normal ankle motion, no pain, no swelling and no tenderness.

The maintenance of normal ankle motion, namely flexion and extension, after injection does not aggravate the injured lateral or medial ligaments and thus normal active use is not contraindicated. Strenuous running or jumping, however, are inadvisable for several days because of the chance of "turning" the ankle again and thus reinjuring the ligaments.

Patients with old untreated sprain of a few to several days' duration are treated either with taping or with procaine hydrochloride injection and returned to activity with instructions to keep moving and to use the part. Recovery in these cases is as a rule slower but even so it is facilitated with active use and motion.

Cozen and Hollombe [2] used the ethyl chloride spray and reported satisfactory results in 8 cases of ankle sprain. Among those who have used and reported good results with local injection of sprains are Sperber and Sabatino,[3] Kiser,[4] Frankel,[5] Ball [6] and Alexander.[7] Frankel recommended avoidance of exercise for a few days, while Ball had his patients use crutches after injection for three days. Alexander, who reported over 500 cases of ankle sprains, advocated, in addition to injection of procaine hydrochloride, strapping the ankle with adhesive tape and then immediate use of the part. He concluded that his results were superior by this method than by any other. His observations are substantiated by the results herein reported, especially that part having to do with immediate use.

2. Cozen, L. N., and Hollombe, B. S.: Ethyl Chloride Spray for Sprained Ankles, Surgery **8**: 468 (Sept.) 1940.

3. Sperber, P., and Sabatino, N. A.: A New Treatment for Sprained Ankles, M. Rec. **142**: 469 (Nov. 20) 1935.

4. Kiser, J. B.: Procaine and Epinephrine Injection in the Treatment of Sprained Ankles, Virginia M. Monthly **63**: 554 (Dec.) 1936.

5. Frankel, E. L.: Treatment of Sprains by Injection of Procaine, Lancet **2**: 597 (Sept.) 1940.

6. Ball, C. R.: Sprained Ankles, U. S. Nav. M. Bull. **38**: 499 (Oct.) 1940.

7. Alexander, H. H., Jr.: Treatment of a Sprained Ankle, Am. J. Surg. **50**: 581 (Dec.) 1940.

SUMMARY

More than 200 patients with ankle sprain were treated with injection of procaine hydrochloride and more than 200 with adhesive tape strappings. Others received no treatment, while still others were put to bed for cold and hot applications. Irrespective of the type of treatment, patients who returned immediately to normal activity and used and moved the foot and ankle improved much more rapidly than those who did not.

Injection with 2 per cent procaine hydrochloride solution into the injured ligaments followed by normal activity gave uniformly the best results. These patients, following complete elimination of pain and tenderness by injection continued immediate use of the part, avoiding only especially strenuous activity as hard running or jumping.

CONCLUSIONS

Immediate and continued active motion and use of a sprained ankle and foot almost irrespective of any local treatment definitely hastens recovery.

The most satisfactory adjunct in the treatment of ankle sprain in order to maintain motion and use of the part is the complete elimination of pain by the injection of 2 per cent procaine hydrochloride solution into the injured ligaments.

A SURVEY OF METHODS FOR ARTIFICIAL RESPIRATION

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A survey of the commonly used methods of resuscitation from acute asphyxia is essential to the evaluation of their efficacy. Such a survey has been in progress for three years, beginning in 1940. It was deemed necessary because of the existing controversy and confusion regarding the relative values and dangers of the different methods. Although the Schafer prone pressure method has received most widespread acceptance, other methods are taught and used by various groups. For example, the United States Coast Guard advocates the use of the Howard modification of the Silvester method when a sufficient number of operators are present. Organizations such as the Chicago Fire

TABLE 1.—*Sources of Case Reports*

	Chicago Fire Department	Los Angeles Fire Department	United States Coast Guard	Chicago Health Department	Other Sources	Total
Complete cessation of respiration						
Survival						
Cardiac cases	9	2	0	0	0	11
Others	42	49	27	0	3	121
Death						
Cardiac cases	502	71	5	0	0	578
Others	193	104	43	6	0	346
Abnormal respiration						
Survival						
Cardiac cases	263	85	0	0	0	348
Others	372	181	14	0	0	567
Death						
Cardiac cases	18	0	0	0	0	18
Others	0	0	1	0	0	1
Deaths: no treatment within thirty minutes	55	7	70	20	0	152
	1,454	499	160	26	3	2,142

Funds to carry on this work were provided by the Council on Physical Therapy of the American Medical Association.

INFORMATION REQUESTED IN CASE REPORT OF ASPHYXIA [1]

FOR THE COUNCIL ON PHYSICAL THERAPY OF THE AMERICAN MEDICAL ASSOCIATION

1. Name of Patient: Age: Sex:
   Address: Occupation:
   Site of accident
   Date of accident: Time discovered:
   Time artificial respiration started:
2. Cause of asphyxia: Carbon monoxide? Electric shock? Drowning? Heart (specific diagnosis)? Suffocation? Other causes?
3. Had breathing completely ceased when patient was first discovered?
4. Was artificial respiration administered before life saving crew arrived? By whom? What method was used? How long?
5. Condition of patient at start of artificial respiration:
   Heart action: Was patient breathing? Pulse:
   Respiration: Color (pink? blue? white?):
6. Method of Artificial Respiration used:
   A. Manual: Schafer prone pressure: How long?
   Other manual method: How long?
   B. Mechanical: Resuscitator [2] How long?
   Inhalator [3] How long?
   Other mechanical device: How long?
   Make and manufacturer:
   C. Combination of manual and mechanical (If used, please fill in A and B also): Was manual method used before or after resuscitator? Was manual method used directly before or at the same time as inhalator?
7. If two or more methods were used in succession, was the patient breathing before the second (and/or third, etc.) method was used?
8. Was the patient alive at end of artificial respiration?
   Pulse after revival: Respiration: Any bleeding from nose or mouth? Remarks on general condition of patient:
9. Was a physician present? Name:
   Address: Phone number:
   How long after discovery of asphyxia did physician arrive?
10. Who administered artificial respiration? (name and address):
    Physician:
    Fireman:
    Lifeguard:
    Coast guardsman:
    Others:
    If not a physician, what type of training did he have?
11. Was patient hospitalized after resuscitation?
    Name of hospital:
    Address:
12. Was person in average health prior to accident? [4]
    Heart disease (specific diagnosis)?
    Tuberculosis?
    Diabetes?
    Other disease?
13. Subsequent history of recovered patient: [4]
    Pneumonia?
    Other remarks:
14. Was an autopsy performed? By whom?
    Was there any evidence of lung abnormality? Other findings: [5]

Signature of physician: Date:

Signature of person administering artificial respiration: Date:

1. This information is for a statistical study of methods of artificial respiration. If unable to fill in all items, please give as much information as possible.

2. Resuscitator: Any device for blowing and sucking air or some other gas mixture in and out of the lungs.

3. Inhalator: Any device supplying oxygen-carbon dioxide mixture for the patient to breathe without mechanically blowing and sucking.

4. Information about history of patient to be obtained from family physician or relative.

5. If insufficient space is allotted, record additional information on separate paper. Write a short history regarding accident on a separate sheet.

THE LOS ANGELES FIRE DEPARTMENT RESCUE SERVICE REPORT

Date responded:
Company: Platoon:
Responded in (vehicle):
Time responded: Time back: Time worked:
Name of victim: Age:
Address:
Location responded to: Phone:
Condition of victim on arrival:
Nature of case:
Doctor in attendance:
Address:
Equipment used:
Method of artificial respiration used:
Amount of oxygen used:
Amount of oxygen-carbon dioxide mixture
Case terminated (date and time, if member was detailed):
Results of treatment: Beneficial? No effect? Died? Revived?
Names of men responding or detailed:
Remarks:
Company commander:

Department and the Los Angeles Fire Department employ mechanical methods. The mechanical devices used are supposed to be free from the dangers which caused such extensive condemnation of the oldtime pulmotor. They produce pressures which do not exceed 18 to 20 mm. of mercury and are therefore not believed capable of injuring delicate pulmonary tissue.

Data for this survey were obtained from several sources. In order to facilitate correlation of the information, a case report form was devised. The Chicago Fire Department and the Chicago Health Department used this form in submitting reports on all cases as they occurred. The Los Angeles Fire Department and the United States Coast Guard sent in data on their regular departmental forms. The information requested in the case report forms is shown herewith. All cooperating organizations agreed to send in reports of all cases of asphyxia as they occurred, regardless of whether revival or death occurred in each instance.

Material presented in this paper represents reports of cases of asphyxia occurring in 1940, 1941 and 1942. Table 1 shows the number of cases from the various

COAST GUARD REPORT ON RESUSCITATION OF THE APPARENTLY DROWNED

Coast Guard Unit: Place: Date of accident:

1. Name, age and sex of person imperiled:
2. P. O. address:
3. Exact time of accident:
4. Distance and direction from unit:
5. Was scene of accident visible from unit?
6. Cause of accident:
7. Temperature of water and atmosphere:
8. Length of time under water:
9. How was time under water determined?
10. By whom taken from water?
11. Did patient rise to the surface after first disappearing? If so, how many times?
12. Did patient breathe or show any other signs of life when taken from the water?
13. How soon after accident did members of Coast Guard arrive on scene?
14. Were efforts made to revive person before the Coast Guard took charge? If so, state by whom, how long and the means employed.
15. Was the patient apparently dead when taken in charge by members of the Coast Guard?
16. Were patient's jaws clenched?
17. How soon after artificial respiration was begun did patient show signs of life?
18. What were the first signs of life shown?
19. What signs of life, if any, were shown while water was first being expelled from the lungs?
20. State probable quantity of water expelled or drained through the mouth on turning patient on stomach the first time and second time, respectively.
21. Length of time artificial respiration was employed.
22. How many Coast Guard men took part in this resuscitation?
23. What means were employed during process of artificial respiration to impart warmth to the extremities?
24. What other means were employed to restore circulation?
25. What stimulants, if any, were administered?
26. Give method of resuscitation employed.
27. Was patient resuscitated?
28. State name and address of physician called, time of arrival, and service rendered.

REMARKS

, *U. S. C. G.*
Commanding Officer.

INSTRUCTIONS

1. This form shall be submitted by all units on each occasion of resuscitation of the apparently drowned, whether or not resuscitation is successful. It shall be prepared in quadruplicate. The original and one copy shall be forwarded to headquarters via the district commander and a copy shall be included for his files; a copy shall be retained in the files of the unit concerned.

2. Under "Remarks," relate in detail the circumstances of the accident, describe each step taken in restoring the patient, and state the successive signs of returning life shown while resuscitation was being performed. If the attempt to revive the patient was unsuccessful, obtain the opinion, if available, of physician or local health officials as to whether or not patient was dead on removal from the water and if death was due to causes other than drowning. State cause of death, if known.

3. If necessary, use separate sheets of paper, 8 by 10½ inches in size, for the submission of additional remarks or in answer to any of the questions on page 1 of the form.

sources and the distribution of the cases reported into groups. The patients who were asphyxiated because of heart disease were considered separately because of the poor prognosis in such cases. It was also found necessary to tabulate separately patients respiring spontaneously (gasping, severe dyspnea and the like) at the start of treatment in contrast to those in whom spontaneous respiration had ceased. Results in the latter group are obviously more significant.

Table 2 represents the patients in whom spontaneous respiration had completely ceased by the time artificial respiration had been started and who survived. A total of 133 cases are presented in this group. The two methods employed most frequently are the E & J resuscitator and the Schafer prone pressure method. Asphyxia neonatorum is the most frequent type of asphyxia in which revival occurred. Next come immersion, carbon monoxide and other less frequently occurring causes.

Table 3 includes all cases of impaired respiration in which survival occurred. In each case breathing had not stopped completely at the start of treatment. There are 915 cases in this group, in 792 of which the E & J inhalator was used. Acute cardiac conditions (coronary occlusion, acute cardiac dilatation and the like) were the most frequent causes of asphyxia in this group, numbering 354 cases.

Cases of carbon monoxide poisoning numbered 147, followed by the less frequent causes that are listed in the table.

TABLE 2.—*Cases of Survival in Which Spontaneous Respiration Could Not Be Noted at Start of Treatment*

Cause of Asphyxia	Method 1 E & J Resuscitator	2 Schafer	3 (1) Schafer (2) E & J Resuscitator	4 Mouth to Mouth Breathing	5 Schafer with E & J Inhalator	6 (1) Schafer (2) Schafer with E & J Inhalator	7 Howard-Silvester	8 Schafer Alternating with Howard-Silvester	9 Drager Pulmotor	10 (1) Schafer (2) Schafer with E & J Inhalator	11 (1) Schafer Schafer with E & J and H & H Inhalators	Total
1. Asphyxia neonatorum	33	..	..	..	..	..	..	..	..	..	..	33
2. Immersion	..	21	2	..	..	1	2	2	..	..	..	28
3. Carbon monoxide	5	4	4	1	..	..	..	..	1	..	..	15
4. Cardiac	5	1	1	..	3	..	..	..	..	..	1	11
5. Acute respiratory infection	1	3	..	1	..	..	..	..	..	..	..	5
6. Drugs	4	..	..	..	..	..	..	..	..	1	..	5
7. Suffocation	1	1	1	1	..	..	..	..	..	..	..	4
8. Convulsions	1	1	..	2	..	..	..	..	..	..	..	4
9. Asthma	2	1	..	..	..	..	..	..	..	..	..	3
10. Stroke	1	..	1	..	..	..	..	..	..	..	..	2
11. Miscellaneous	4	1	3	..	..	..	..	..	..	..	..	8
12. Undetermined	9	2	..	2	1	1	..	..	..	..	..	15
	66	35	12	7	4	2	2	2	1	1	1	133

TABLE 3.—*Cases of Impaired Respiration in Which Survival Occurred: In Each Case Breathing Had Not Stopped Completely at Start of Treatment*

	Method 1 E & J Inhalator	2 H & H Inhalator	3 (1) Schafer (2) E & J Inhalator	4 E & J Inhalator Alternating with H & H Inhalator	5 Howard-Silvester	6 Schafer	7 (1) Schafer with H & H Inhalator (2) H & H Inhalator	8 (1) Mouth to Mouth Breathing (2) E & J Inhalator	9 (1) Schafer with E & J Inhalator (2) E & J Inhalator	10 Various Methods, Each Used in 1 Case Only	Total
1. Cardiac	330	7	6	9	..	..	..	1	..	1	354
2. Carbon monoxide	111	11	8	10	..	1	2	..	2	2	147
3. Asphyxia neonatorum	75	..	..	..	..	..	..	..	..	..	75
4. Asthma	46	1	3	..	..	..	..	..	..	..	50
5. Convulsions	39	1	1	..	..	..	..	1	..	1	43
6. Stroke	22	..	..	1	..	..	..	..	..	..	23
7. Pneumonia	17	1	..	1	..	..	..	..	..	1	20
8. Immersion	2	..	3	..	6	6	..	..	..	..	17
9. Hypnotic drugs	12	..	1	..	..	..	..	..	..	..	13
10. Ammonia	2	6	..	..	..	..	..	..	..	..	8
11. Suffocation	4	..	2	..	..	..	..	..	..	..	6
12. Epilepsy	6	..	..	..	..	..	..	..	..	..	6
13. Sulfur dioxide	4	1	..	..	..	..	..	..	..	..	5
14. Miscellaneous	56	4	2	4	1	1	..	..	..	2	70
15. Undetermined	66	4	3	2	2	..	1	..	..	..	78
	792	36	29	27	9	8	3	2	2	7	915

Table 4 represents cases in which death occurred. In all of these cases there is no evidence that thirty minutes or more had elapsed between cessation of breathing and the start of artificial respiration. Seventeen patients with cardiac lesions and 1 whose illness was undiagnosed died, although they were breathing when treatment was started. Thirty minutes was selected as the maximum interval between cessation of breathing and the start of artificial respiration, although a maximum of more than fifteen minutes is probably not entirely consistent with physiologic evidence. A thirty minute limit was chosen because, owing to the emergency nature of the cases reported and the inherent confusion which naturally results, errors of as much as 100 per cent can easily be expected in the estimation of time by onlookers or participants and because periods of as long as one hour or more have been reported in the literature.[1] Of the 133 cases of survival presented in this report, the maximum time between the onset of asphyxia and the start of artificial respiration was fifteen minutes.

TABLE 4.—*Deaths* *

	Method														
	1 E & J Resuscitator	2 (1) Schafer (2) E & J Resuscitator	3 Schafer	4 Howard Silvester	5 (1) E & J Inhalator (2) E & J Resuscitator	6 Schafer with E & J Inhalator	7 (1) Schafer (2) Schafer with E & J Inhalator	8 (1) E & J Resuscitator (2) Schafer with E & J Inhalator	9 (1) Schafer (2) Howard Silvester	10 (1) Mouth to Mouth Breathing (2) E & J Resuscitator	11 (1) E & J Resuscitator (2) Schafer	12 (1) Chest Compression (2) E & J Resuscitator	13 (1) Schafer with E & J Inhalator (2) E & J Resuscitator	14 Various Methods Each Used in 1 Case Only	Total
1. Cardiac	475	70_2	3	3	14_{14}	7	3	6	..	..	2	2	1	4_1	590_{17}
2. Immersion	6	13	21	12	..	..	3	..	6	..	..	..	1	2	64
3. Asphyxia neonatorum	39	..	..	..	..	..	..	..	..	1	..	..	..	1	41
4. Carbon monoxide	19	8	..	..	..	2	2	..	..	..	..	..	..	..	31
5. Suffocation	17	8	..	..	..	1	..	..	..	1	..	..	..	1	28
6. Electric shock	4	6	..	..	..	..	..	..	..	..	..	..	..	2	12
7. Acute respiratory infection	11	1	..	..	..	..	..	..	..	..	..	..	..	..	12
8. Stroke	7	1	..	..	..	..	1	..	..	..	..	..	..	..	9
9. Asthma	4	..	..	..	..	1	..	..	..	..	..	..	..	..	5
10. Miscellaneous	20	6	..	..	..	..	..	1	..	1	..	..	..	2	30
11. Undetermined	97	10	1_1	..	..	2	..	..	..	..	..	..	..	1	111_1
	699	120_2	25_1	15	14_{14}	13	9	7	6	3	2	2	2	13_1	933_{18}

* In all cases there is no evidence that thirty minutes or more had elapsed between cessation of breathing and start of artificial respiration. Subscript figures indicate cases in which patient was still breathing when treatment was started.

In table 4 933 fatalities are presented. The great majority of these (590) were victims of cardiac ailments. Other causes include immersion, asphyxia neonatorum and other less frequently occurring conditions. Use of the E & J resuscitator was the most frequent method employed. The second most frequent method was the use of the E & J resuscitator preceded by the Schafer method. This represents instances in which a passer-by had started the Schafer method and firemen subsequently took over with the E & J resuscitator.

RESULTS

It is evident that in spite of the large number of cases presented (no similar group of cases has previously been reported in the literature), it is not yet possible to make a comparative evaluation of the different methods that are listed. Theoretically, in order to compare the efficacy of two methods data should be presented in which each of the methods is used in a significant number of cases in each type of asphyxia. In its present state this survey does not present such data. Thus of 74 cases of asphyxia neonatorum (33 survivals and 41 deaths) in which spontaneous respiratory rhythm was not present at the start of treatment, 72 were treated by the E & J resuscitator and none by the Schafer method. In all the data given in this report there are too few cases in which the Schafer and other manual methods were used. However, the material presented here does reveal the following:

1. There are 66 cases of acute asphyxia in which a mechanical method of artificial respiration with alternate blowing and sucking resulted in revival. None of the patients, 33 of whom were newborn infants, showed evidence of injury as a result of this procedure.

2. There are 35 cases in which the Schafer prone pressure method was successful in resuscitation. In none of these cases nor in any of the additional 215 cases in which the Schafer prone pressure method was used (either entirely or in part) was there any report of fractured ribs. Such injuries have been said to be a possible result of improper use of this method.

3. No instance of revival was reported in which more than fifteen minutes elapsed between the cessation of breathing and the start of artificial respiration.

4. Of 584 patients with asphyxia and complete cessation of respiration due to cardiac causes, only 11 survived. Of 371 patients with impaired respiration due to cardiac dysfunction, 354 survived and 17 died. According to the data, the Chicago Fire Department and the Los Angeles Fire Department treat more cases of asphyxia due to circulatory failure than any other cause.

This paper is not presented as a final summary but as a progress report. It is hoped that in the future additional organizations using some form of artificial respiration routinely will cooperate. Reports of instances in which the Schafer or some other manual method of artificial respiration is used will be particularly helpful. A series of reports received from any life saving organization should include all patients treated by that organization within a given period. Report forms will be sent to any organization on request.

4549 Lake Park Avenue.

1. Bates, Gordon: Modern Resuscitation Procedures, Hospitals **14**: 46-50 (March) 1940.

STAB WOUND OF THE HEART

REPORT OF A SUCCESSFUL OPERATION

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Modern surgery has contributed many outstanding scientific achievements the most recent of which include successful operations on the organs of the chest. This has been made possible in great part by a better understanding of the problems caused by an altered physiology of the respiratory and cardiovascular systems. As a result, newer and better methods in anesthesia have been devised, and operative technic has been greatly improved. Today the morbidity and mortality of thoracic surgery is not much different from that of surgery elsewhere in the body. In addition, the use of the sulfonamide compounds has greatly reduced the incidence of fatal postoperative respiratory infections—complications more frequently seen in chest surgery.

Suturing of heart wounds is a relatively recent procedure. The first report in the literature of a human heart to be sutured was by Cappelen [1] in September 1895. However, this resulted in a mortality, as did the case of Farina [2] in March 1896. Rehn [3] of Frankfort recorded the third case of heart suture in September 1896, and this operation resulted in recovery. As was to be expected, many more successes soon were reported once the practicability of the operation was established.

The percentage of reported recoveries, however, must not lead one to believe that the mortality has been low.[4] Unquestionably the large number of fatal cases has not been publicized while the individual favorable cases usually have. Most observers believe that the mortality has been 50 to 60 per cent. Bigger [5] mailed a questionnaire to 427 surgeons, all members of the American Association for Thoracic Surgery, the American Surgical Association and the Southern Surgical Association. According to the answers received, 128 patients were operated on for wounds of the heart chambers and coronary arteries. Sixty-three patients recovered and 65 died, a mortality of approximately 50 per cent. Therefore, even though stab wounds of the heart are infrequent occurrences, many a life can be saved by an accurate diagnosis, an early, well planned operation and a thorough understanding of the treatment of postoperative complications. Herewith is reported a lacerated wound of the right ventricle successfully sutured.

REPORT OF CASE

History.—J. D., a boy aged 14 years, was admitted to St. John's Long Island City Hospital, Nov. 25, 1941 about a half hour after he had been stabbed. The weapon used was vaguely described as a pen knife of unknown length. The patient collapsed immediately after the stabbing and fell to the ground. A large amount of blood loss was not evident at the scene of the accident or on the patient's clothes. Two passers-by who happened to witness the stabbing brought the patient to the hospital.

Examination.—On admission the patient appeared to be thin and undernourished and exhibited extreme pallor of the skin and mucous membranes. He was in shock but conscious and well oriented. The pulse was 120 to 130 a minute and regular but barely perceptible. The systolic blood pressure was 60 mm. of mercury and the diastolic pressure 40 mm. of mercury. Respiratory difficulty was not evident. To the left of the sternum a 1 inch vertical lacerated wound was seen at about the level of the fourth intercostal space. The wound bled very little externally. The surrounding subcutaneous tissues were emphysematous but not ecchymotic. The left side of the chest anteriorly showed diminished breath sounds. The abdomen was soft and free from tenderness and seemed to be uninvolved. An emergency blood count showed 4,490,000 erythrocytes and 90 per cent hemoglobin, or 13.1 Gm. per hundred cubic centimeters of blood. Examination of the precordial region was interesting, since heart sounds of fairly good quality were heard. Close inspection of the veins of the neck revealed definite enlargement and distention.

An immediate fluoroscopic examination by the roentgenologist, Dr. Joseph Sullivan, disclosed "no cardiac motion visible under the fluoroscope." Therefore the diagnosis of cardiac hemorrhage with tamponade was made, and immediate operation was decided on.

Operation.—Anesthesia was by local infiltration and regional intercostal nerve block with 1 per cent procaine hydrochloride. The incision was U shaped, with the base to the left over the costochondral junctions and the anterior rib stumps. The curved portion was placed at the left sternal border extending from the third to the sixth costal cartilage. The superficial stab wound was included in the center of this flap. The incision was carried through skin, subcutaneous tissue and extracostal muscles down to the plane of the cartilages and ribs. The fourth, fifth and sixth costal cartilages were completely removed up to the sternum, together with 1 to 2 inch segments of corresponding ribs. All this was accomplished subperichondrially and subperiosteally.

The internal mammary artery and vein were doubly ligated above and below and then sectioned. At this point, one could see clearly that the wound penetrated the left pleura first and then the pericardium. The pericardial fat was swollen and extensively ecchymotic. The opening into the pericardium and pleura was now enlarged, and large clots could be seen in the pleural cavity. No lacerated pulmonary tissue was noticed. This was particularly searched for because of the subcutaneous emphysema. Incision into the pericardium resulted in the expulsion of several large clots with liquid blood. A hurried inspection of the heart disclosed a 2 to 3 cm. wound of the right ventricle extending through the entire ventricular wall into the chamber. The wound was situated at the junction of the middle and lower thirds of the right ventricle near the interventricular septum. The heart was bleeding actively from the wound, but the beats were regular.

To control the bleeding [6] the tip of the left index finger was placed lightly over the lacerated wound but not into it. A traction suture of silk was inserted through the cardiac apex according to the method first described by Beck [7] in his work on experimental animals.

This permitted an assistant to steady the heart for suturing. Two figure-of-eight sutures of fine black silk were placed through the full thickness of the ventricular wall, completely closing the opening and controlling the hemorrhage. The ventricle was too thin in this region to obtain satisfactory closure of the laceration without carrying the suture material into the chamber. Clots and liquid blood were hurriedly removed from the pericardial and pleural sacs, but an attempt was not made to remove all of them. The lingula and anterior edge of the lower lobe of the lung were loosely sutured to the anterior margin of the pericardial incision. Drainage of blood and serum from the pericardial sac into the left pleural cavity was thus made possible by the incomplete closure of the pericardium. The rest of the wound was closed with interrupted chromic catgut sutures for the muscle and fascia and interrupted black silk sutures for the skin.

The anesthesia was good and the patient cooperated fully in spite of his youthful age. Only when the pericardium was incised and the clots evacuated did he become restless and

From the Surgical Service of St. John's Long Island City Hospital.
The medical collaboration of Dr. E. W. McLave, director of the medical service, contributed to the favorable outcome in the case reported.

1. Cappelen, Axel: Vulna Cordis: Sutur af hjertet, Norsk mag. f. Lægenvidensk. **11**: 285, 1896.
2. Farina, G.: Discussion, Centralbl. f. Chir. **23**: 1224, 1896.
3. Rehn, L.: Neber penetrierende Herzwunden und Herznaht, Arch. f. klin. Chir. **55**: 315, 1897.
4. Elkin, D. C.: Wounds of the Heart, J. Thoracic Surg. **5**: 590 (Aug.) 1936.
5. Bigger, I. A.: Heart Wounds, J. Thoracic Surg. **8**: 239 (Feb.) 1939.
6. Elkin, D. C.: The Diagnosis and Treatment of Cardiac Trauma, Ann. Surg. **114**: 169 (Aug.) 1941.
7. Beck, C. S.: Wounds of the Heart: The Technic of Suture, Arch. Surg. **13**: 205 (Aug.) 1926.

disturbed. However, this was not troublesome enough to interrupt the operation. Throughout the procedure 500 cc. of citrated blood was administered. The entire operation, including the time for induction of the anesthesia, consumed about forty minutes. The patient left the operating room in much better condition than when he entered, his pulse being only 108 beats a minute and of much better quality.

Postoperative Course.—After the patient's return to bed from the operating room his temperature by rectum was 101.8 F. and his respiratory rate 40 a minute. He was immediately placed in an oxygen tent for relief of anoxia. During the first night more citrated blood was given, making a total of 850 cc. of blood administered thus far. On several occasions the patient complained of severe precordial pain for which several doses of morphine sulfate had to be given hypodermically. In the morning it was possible to give 1 Gm. doses of sulfathiazole and sodium bicarbonate by mouth every four hours since the patient was retaining fluids well without any symptoms of nausea or vomiting. Throughout his first postoperative day his breathing was labored, with a respiratory rate never below 40. At times he was so insistent about remaining outside of the oxygen tent that his wish had to be granted. However, no ill effects were observed, and later on we were able to persuade him to be placed in the tent again. The precordial pain was particularly distressing and was his only complaint.

Three days later (twelfth postoperative day) aspiration was again done, resulting in the removal of 660 cc. of the blood tinged fluid. Laboratory studies failed to detect bacteria or pus cells in the fluid.

On the seventeenth postoperative day the patient had severe pain over his heart, left shoulder and neck, respirations were rapid and cyanosis was present. This condition persisted for forty-eight hours, during which time the temperature rose from 101 F. to 103 F. Crepitant rales were elicited in the left base posteriorly. Roentgenograms (fig. 2) showed less fluid, but the lung seemed to be reexpanding. The pericardial shadow seemed widened and displaced to the right, indicating the possibility of pericardial effusion. Electrocardiographic studies were not helpful. However, aspiration of the pericardium yielded neither fluid nor blood. I believe that what appeared to be a widened pericardium was only a pericardium rotated to the right because of lack of support of the chest wall. Costal cartilages and ribs had not yet regenerated, and this support was lacking.

Fortunately this acute episode of fresh pulmonary infiltration lasted only five days, after which time the patient suddenly and rapidly improved. Dyspnea, fever and rapid pulse subsided quickly, and from this time on the patient enjoyed a smooth convalescence. His improvement coincided with a stiffening of the chest wall in the operative region. He left the hospital Jan. 24, 1942, apparently entirely recovered.

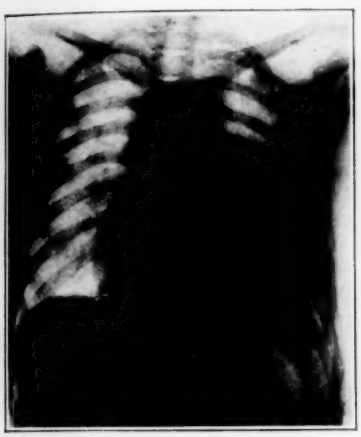

Fig. 1.—Partially collapsed left lung and fluid in the left pleural cavity thirty-six hours after the operation. The mediastinum is not shifted to the right.

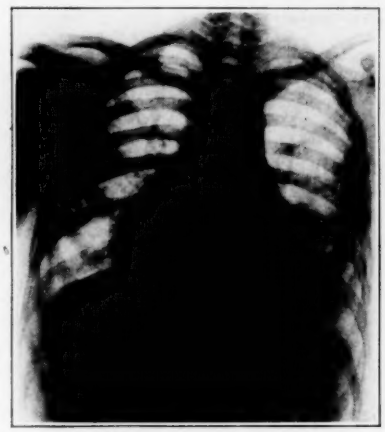

Fig. 2.—An apparently widened mediastinum suggestive of an effusion into the pericardial sac twenty-three days after the operation. Exploratory aspiration failed to reveal pericardial fluid or blood. A softened chest wall in the operative region permitted retraction and rotation of the parietal pericardium, thus accounting for the confusing picture.

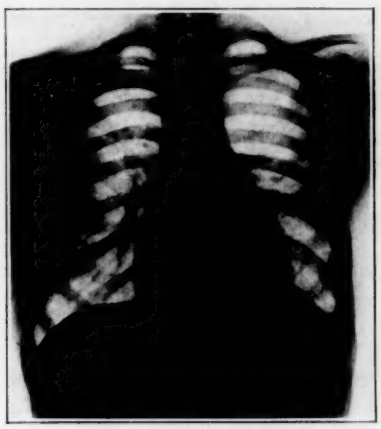

Fig. 3.—Appearance two and one-half months after the operation, practically normal except for thickened pleura in the left side of the chest.

On the second postoperative day his condition improved sufficiently to permit an electrocardiogram to be taken. These studies will be discussed at length later in this report. Three hundred cc. more of blood was given. The temperature remained around 102 F., the pulse rate 130 and regular and the respiratory rate not less than 34 a minute. His blood pressure was 118 mm. systolic and 74 mm. diastolic. A bedside roentgenogram (fig. 1) revealed a reexpanding left lung with a moderate amount of fluid in the left hemithorax, and there was a slight mediastinal shift to the right. The operative wound was inspected and found clean. Definite paradoxical movement of this area with respiration was noted.

From the third day on improvement was slow but progressive. A serum reaction from tetanus antitoxin caused generalized adenitis and orbital edema. Fluid accumulated in the left pleural cavity, the lung remained partially collapsed and paradoxical motion was still present over the precordium.

Nine days after the operation enough pleural fluid collected to require aspiration. This procedure was carried out in the seventh interspace in the midscapular line, whereupon 260 cc. of thin blood tinged fluid was removed. On bacteriologic studies this material was reported sterile with an occasional mononuclear cell and a rare polymorphonuclear cell. This pleural decompression resulted in less dyspnea and an improvement in the patient's color. Even though the amount of fluid removed was small, relief was considerable, since the patient's chest was of small capacity.

He was readmitted twelve day later, on February 4, complaining of fever and chest pain. Physical examination and roentgen studies disclosed a limited area of consolidation in the lower part of the left lower lobe with a small amount of fluid. He responded favorably to sulfadiazine therapy and in five days was free from fever and fully recovered. He was discharged from the hospital for a second time on March 12.

Follow-up examinations revealed a well regenerated chest wall with only a small soft area in the center of the operative wound. For this he wears a small protective pad of felt to avoid accidental injury. There are no complaints of precordial pain or shortness of breath. He attends school and runs and plays as well as his friends do.

ELECTROCARDIOGRAPHIC CHANGES

The patient's past history disclosed that he had never been operated on or stricken with any serious medical illness. Therefore, it can be assumed that the boy had a normal heart prior to the accident and that if electrocardiographic studies had been made they would have been normal.

As indicated in figure 4, electrocardiograms were taken after the operation at intervals of thirty-six hours, three days, seven days, twenty-three days, thirty-two days and one hundred and fifty-two days. The find-

ings parallel those reported by Davenport,[8] Warthen [9] and others. Our patient's records show the typical progression of changes seen in infarction on the anterior wall of the heart. Thirty-six hours after operation the

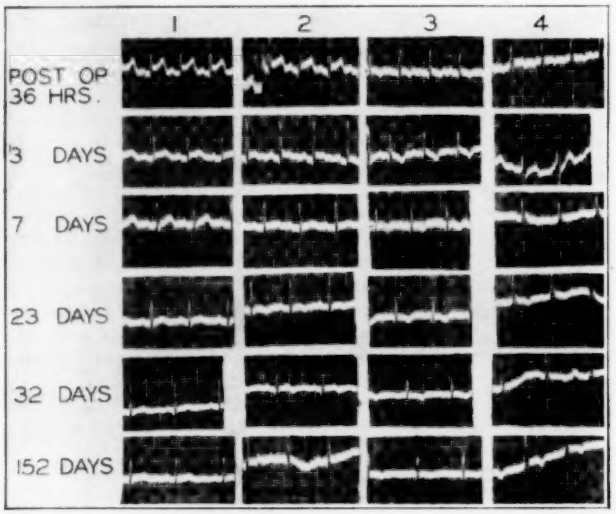

Fig. 4.—Typical progression of changes postoperatively seen in infarction on the anterior wall of the heart. Thirty-six hours after the operation the tracing was typical of the acute phase of infarction. However, only one day later a second tracing demonstrated less displacement of the ST segment.

tracing was typical of infarction of the anterior wall in the acute phase. However, only one day later a second tracing demonstrated less displacement of the ST segment. From this period on ST segments showed even less elevation together with those other changes indicative of progressive healing of the infarction. The last electrocardiogram, taken one hundred and fifty-two days after the operation, was practically normal except for a small Q wave in leads 2 and 3 and inversion of the T wave in leads 3 and 4. However, these may be considered normal changes in children.

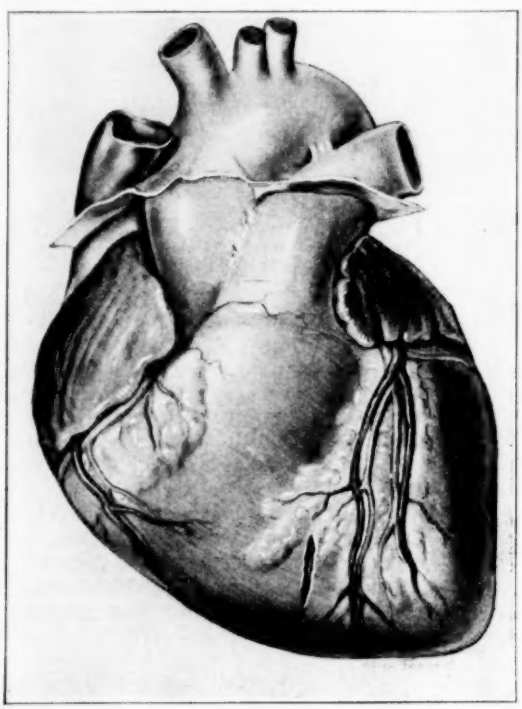

Fig. 5.—The laceration penetrated through the entire thickness of the anterior wall of the right ventricle. It was possible to place the two interrupted silk sutures in the wound edges without involving any vessels.

Should it become necessary to include branches of the coronary vessels in the suturing of lacerated wounds of the heart, abnormalities in the electrocardiograms may persist for many months.[10] Olim and Hughes [11] described abnormalities in the fourth lead due to encirclement of the left anterior descending coronary vessels by the sutures.

Mention must be made here that heart wounds of small size, such as ice pick puncture wounds, manifest electrocardiographic disturbances of lesser degree and also of shorter duration. On the other hand, large lacerations penetrating the heart wall completely and requiring more than one suture interfere to a greater degree with conduction and myocardial circulation.

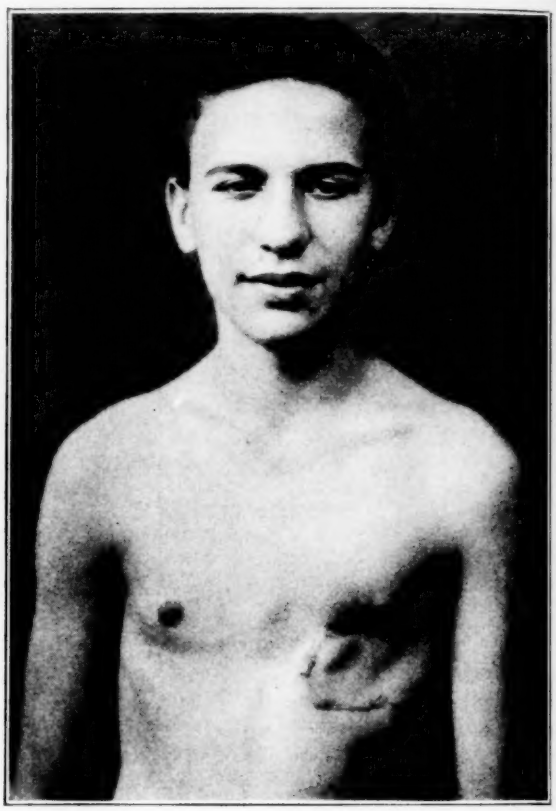

Fig. 6.—Appearance of patient about nine months after the operation. The wound is well healed and only a minimal amount of softening of the chest wall is present. The patient is free from any symptoms.

COMMENT

Diagnosis.—The classic signs of tamponade may not always be present. My patient showed only a slight diminution in the intensity of the heart sounds and very little shift of the maximum apical beat from the normal position. This can be explained by the thin chest wall and the effective plugging of the heart wound by clots and blood. However, fluoroscopy clearly demonstrated an immobile heart.

Warthen [9] describes a case in which tamponade was not present. The clinical picture was one of profound

8. Davenport, G. L., and Markle, P. M.: The Electrocardiogram in Stab Wounds of the Heart, J. Thoracic Surg. **3**: 374 (April) 1934. Davenport, Blumenthal and Cantril.[10]

9. Warthen, H. J.: Stab Wound of the Heart, Ann. Surg. **102**: 147 (July) 1935.

10. Davenport, G. L.; Blumenthal, Basil, and Cantril, S. T.: Electrocardiographic Studies of a Stab Wound of the Heart, J. Thoracic Surg. **5**: 208 (Dec.) 1935.

11. Olim, C. B., and Hughes, J. D.: Stab Wound of the Heart with Coronary Ligation, J. Thoracic Surg. **9**: 99 (Oct.) 1939.

shock and severe hemorrhage; heart sounds could be heard, but only feebly. In fact the preoperative diagnosis was severance of the internal mammary vessels with active bleeding. At operation the pleural cavity was the seat of a massive hemothorax, since the pericardium was decompressing itself into the left pleural cavity.

Anesthesia.—Patients in such grave states of shock tolerate surgical procedures best when local anesthesia is used. This can always be supplemented by inhalation anesthesia if the patient's behavior warrants it. In the literature, mention has been made of the restlessness under local anesthesia at the time of opening the pericardial sac and relieving the cardiac compression. This procedure was not serious in my case and the operation proceeded without incident. I believe that the choice of anesthesia should follow the same principles as are applicable to operations elsewhere in the body; the surgeon should utilize that method which in his hands has given the best results.

Incision.—Blalock [12] reported a successful case in which he used a sternum splitting incision, later approximated by encircling sutures of silver wire. This incision was originally described by Cutler [13] in Dean Lewis's Surgery, but thoracic surgeons in general condemn its use. The procedure is time consuming and shocking for the patient and fails to afford proper exposure, since lacerations of the pleura usually accompany stab wounds of the heart.

The flap incision used in this case affords a quick approach with adequate exposure. Subperichondrial and subperiosteal removal of the costal cartilages and ends of the ribs permits the regeneration of a stiff chest wall. This is important because the parietal pericardium derives considerable support from its attachment to this region of the chest. If this support is missing, the result is a more mobile mediastinum, definite paradoxical breathing, a rapid respiratory rate and a lessened negative pressure in the pleural cavity with delayed reexpansion of the left lung. Regeneration of these structures takes approximately four weeks. Figure 2 illustrates the rotation and displacement of the pericardium to the right simulating the shadow of pericardial effusion. However, exploratory pericardial aspiration was negative, disproving the possibility of pericardial effusion. At this time there was an insufficient amount of fluid in the left pleural cavity to cause a shift of the mediastinum to the right. But approximately four weeks after operation, the chest wall stiffened and the symptoms of tachypnea and respiratory distress suddenly ceased. Roentgenographic studies showed the mediastinum returning to the normal position with an increased reexpansion of the left lung.

Suturing of the Heart Wound.—Heart muscle is friable and merits gentleness in handling.[14] Mamikonoff [15] relates an unusual experience in suturing a lacerated heart. He used silk, and on both occasions the sutures cut through. After these failures he applied a flap of pleuropericardial septum over the opening, thus effectively plugging the bleeding area.

Even though many surgeons have used catgut successfully for closure, the use of silk, nylon or cotton is preferred. There is less local foreign body reaction and a smaller area of fibrotic tissue results. Of course the suture material should be as fine as is consistent with adequate tensile strength. Mamikonoff states that he used "thick silk sutures which cut through." This may account for the failure of his sutures to approximate the heart wound without cutting through the muscle edges.

If an artery or its branches are close to wounds, every effort should be made not to include the vessels in the sutures. In an ingenious manner of suturing, Beck [16] describes a method for approximating wound edges without involving vessels. He refers to the case of Olim and Hughes [11] and shows diagrammatically how inclusion of the vessel in the sutures could have been avoided.

Drainage.—Instances are mentioned in the literature wherein cardiac tamponade recurred following an apparently successful operation for a stab wound. To avoid such complications, pleuropericardial drainage should be instituted. Since most patients also demonstrate a pleural wound, such drainage can be conveniently established. In the case reported here, in addition to allowing drainage from the pericardial sac into the left pleural cavity, the edge of the lung in the region of the lingula was loosely sutured to the anterior border of the pericardial opening. This provides a buffer between the heart and the chest wall and at the same time permits decompression of blood and clots from the pericardial sac.

External drainage is mentioned only by way of condemnation. Olim and Hughes [11] summarize the subject well with the following arguments:

1. Drains are irritating and increase the amount of pericardial effusion.
2. Drains invite infection.
3. Drains predispose to the introduction of air into the wound, causing "sucking" and all the other complications of an altered intrapleural pressure.
4. Drains increase the possibility of pericardial fibrosis with adhesions even though no infection is present.

Respiratory Complications.—These are to be expected since the pleural cavity is entered in almost every case and the pericardium is intentionally drained into it. However, the use of the sulfonamide compounds locally and systemically can usually be relied on to combat such infections. In the case reported here, several aspirations of the pleural space were necessary but no bacteria or pus cells were ever seen in the fluid. These simple aspirations of 150 to 300 cc. of fluid were sufficient to relieve the mediastinal and pulmonary embarrassment of this boy.

About five weeks after his discharge the patient was brought back to the hospital, where a diagnosis was made of an infiltrative process involving the lower half of the left lung field, accompanied by a small amount of fluid ascending the lateral chest wall. Such a recurrence of the pathologic condition can be accounted for by the fact that the lung and pleurae were exposed to trauma and external infection. The delayed reexpansion of a collapsed lung, even with low grade infection, results in widespread formation of fibrous tissue and peribronchial infiltration. The bronchi in the involved area of the lung may become thickened and distorted and their lumens narrowed. They are apt to drain their secretions incompletely, thus making the cough reflex

12. Blalock, Alfred: Stab Wound of Heart, Ann. Surg. **93:** 1278 (June) 1931.
13. Cutler, E. C., in, Lewis, Dean: Practice of Surgery, Hagerstown, Md., W. F. Prior Company, 1930, vol. 14, chapter 13
14. Beekman, Fenwick: Stab Wounds of the Heart, Arch. Surg. **26:** 510 (March) 1933.
15. Mamikonoff, Michael: Cardiorrhaphy in Wounds of the Heart, Ann. Surg. **97:** 547 (April) 1933.
16. Beck, C. S.: Further Observations on Stab Wounds of the Heart, Ann. Surg. **115:** 698 (April) 1942.

ineffectual. This accumulation of bronchial secretions blocks the airways, causing areas of atelectasis distal to the obstruction. The end result is the formation of patches of consolidation of various sizes distributed throughout the lung.

As for the pleural reaction, the formation of fluid is to be expected in almost all openings into the pleural cavity, accompanied by the usual changes in negative pressure and collapse of the lung. Lacerations of lung tissue are accompanied by bronchopleural fistulas, and these may be sealed temporarily or permanently. If fistulas remain open, severe contamination of the pleural cavity may follow, since bronchi of medium and large size harbor many aerobic and anaerobic organisms. In this event an operation for empyema may be necessary. One should bear in mind the possibility of a pressure pneumothorax, because deflation at the proper time may be necessary as a life saving measure.

SUMMARY

1. The stab wound of the heart in the case reported was through the entire anterior wall of the right ventricle.

2. Pericardial effusion was suggested by postoperative roentgenographic studies. In reality, the softened chest wall permitted the mediastinum to fall away from the precordium, thus simulating a widening pericardium.

3. Serial electrocardiograms demonstrated tracings typical of an infarction of the anterior wall. In six to seven weeks electrocardiographic evidence of myocardial damage disappeared.

4. A recurrence of pleuropulmonary infection after discharge from the hospital responded favorably to sulfonamide therapy.

30-64 Thirty-Seventh Street.

Clinical Notes, Suggestions and New Instruments

ACUTE AGRANULOCYTOSIS DUE TO ADMINISTRATION OF SUCCINYLSULFATHIAZOLE

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Cases of acute agranulocytosis due to the administration of sulfanilamide,[1] sulfapyridine,[2] sulfathiazole [3] and sulfadiazine [4] have been reported. A review of the literature reveals no cases of acute agranulocytosis due to succinylsulfathiazole. Because of the importance this drug has assumed in the treatment of gastrointestinal disease,[5] it is important to present this case of fatal agranulocytosis.

REPORT OF CASE

R. M. Y., a white youth aged 19, a factory inspector, was admitted to the department of dermatology and syphilology of the University Hospital on April 4, 1942 complaining of a nonpruritic cutaneous eruption of six months' duration. The family history and the past history of diseases were noncontributory. The physical examination revealed a temperature of 98.6 F., a pulse rate of 80, a respiratory rate of 20 and a blood pressure of 120/80. The remainder of the physical examination was essentially negative except for the skin, which showed a dermatitis on the scalp and face, in the axillas, about the genitalia and on the extremities. The laboratory studies revealed that the urine was normal, the Kahn reaction negative, the hemoglobin 89 per cent, the white blood cell count 12,700 and the blood type O. The chest film showed calcified hilar and parenchymal scars. There was no active pulmonary tuberculosis. Sigmoidoscopy revealed minimal proctitis and internal hemorrhoids. The patient responded well to local treatment.

On May 19 the patient was readmitted to the hospital because of a recurrence of the cutaneous lesions on the sites previously affected. On entrance the hemoglobin was 100 per cent and the white blood cells numbered 8,100. On July 2 he received a single injection of 30 million killed typhoid bacilli. On the following day he was started on sulfathiazole and sodium bicarbonate therapy. After three doses of 1 Gm. of the sulfathiazole in forty-eight hours chilliness, malaise, dizziness and loss of appetite occurred. The sulfathiazole was stopped immediately, though it was felt that all the symptoms were due to the intravenous injection of killed typhoid bacilli.

Twenty-six days later (July 31) the patient was again started on sulfathiazole 1 Gm. with sodium bicarbonate 0.6 Gm. four times a day. Concomitantly an intravenous injection of 35 million killed typhoid bacilli was given. On the first day the patient had an emesis with chills and muscular pains followed by fever for six days. During this period he received 15 Gm. of sulfathiazole. At first it was believed that the typhoid vaccine was the cause of these symptoms, but the duration of the febrile response was so long that sulfathiazole had to be considered its cause.

On September 9 the patient was readmitted with a recurrence of his original dermatitis. On admission the white blood cell count was 10,500 and the hemoglobin content was 95 per cent. The fasting blood sugar was 84 mg. per hundred cubic centimeters. The urine was normal. Scrapings from the skin of the axillas, groin and ears grew Monilia albicans on cornmeal agar. A skin test with oidiomycin 0.1 cc. of 1 : 100 was positive in twenty-four and forty-eight hours. On the basis of these findings and the chronicity of the dermatitis, a diagnosis of moniliasis was made.

On Feb. 9, 1943 the patient was readmitted to the hospital for the fifth time. He now complained of the loss of 5 pounds (2.3 Kg.), diarrhea and his original dermatitis. The skin test with oidiomycin 0.1 cc. of a 1 : 100 dilution was again positive. It was felt that the patient had moniliasis of the gastrointestinal tract as well as of the epidermis, so he was placed on succinylsulfathiazole 3 Gm. every six hours. After taking 15 Gm. of the drug the patient felt flushed. When he had taken an additional 3 Gm. there was a chill followed by nausea and vomiting. Food and all medication were refused for twenty-four hours because of stupor. A blood sulfathiazole determination [6] was too low to be read. On the fifth day following the administration of the drug the patient again willingly took his food and medication. There were no further complaints or febrile responses until ten days later (February 27), when following the injection of 20 million killed typhoid bacilli the temperature rose to 100 F. On the following day headache, dizziness and nausea occurred. On the next day, seventy-two hours before his death, he complained of a sore throat, fever and difficulty in swallowing. He refused his

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3. Kennedy, Putman C., and Finland, Maxwell: Fatal Agranulocytosis from Sulfathiazole, J. A. M. A. **116:** 295-296 (Jan. 25) 1941. Thompson, Lee: Agranulocytosis Due to Sulfathiazole, Northwest Med. **41:** 133 (April) 1942.

(Footnotes continued in next column)

4. Curry, John J.: Acute Agranulocytosis Following Sulfadiazine, J. A. M. A. **119:** 1502-1503 (Aug. 29) 1942. Levin, Manuel, and Bethell, Frank H.: Fatal Granulocytopenia Developing During the Administration of Sulfadiazine, Univ. Hosp. Bull., Ann Arbor **8:** 30-32 (April) 1942.

5. Smyth, Charley J.; Gould, Sylvester E., and Finkelstein, Morris B.: The Treatment of Acute Bacillary Dysentery (Flexner) with Sulfaguanidine and Succinylsulfathiazole, Proc. Cent. Soc. Clin. Research **15:** 11, 1942. Poth, Edgar J.: Succinylsulfathiazole, J. A. M. A. **120:** 265-269 (Sept. 26) 1942. Poth and Knotts.[7]

6. Marshall, E. K., Jr., and Litchfield, J. L., Jr.: The Determination of Sulfanilamide, Science **88:** 85, 1938.

food, bath and succinylsulfathiazole, of which he had taken 159 Gm. A blood sulfathiazole determination [6] taken at this time was again too low to be read. Physical examination showed that the patient was seriously ill, with a temperature of 104.5 F., a pulse rate of 120 and a respiratory rate of 20. The skin was dry and noncyanotic. There was some swelling of the right side of the neck. The throat was bright red with a few small superficial ulcerations. There was uvular and pharyngeal edema. In twelve hours the temperature was 105 F., pulse rate 120 and respiratory rate 28. The edema of the throat had increased so much that it became difficult for the patient to breathe or even swallow water. In the mouth and throat appeared a thick, gray, tenacious mucoid material which added to the patient's discomfort. An epinephrine spray (1:100) to the throat and aspiration of the mucus from the mouth and throat gave a minimal amount of comfort. Repeated blood counts revealed rapidly developing acute agranulocytosis.

The patient was given a total of 1,250 cc. of fresh citrated whole blood by transfusion over a period of three days. At the same time he received a daily intramuscular injection of 5 cc. of liver extract. Pentnucleotide was administered in the following schedule: first day one injection of 10 cc., second day three injections of 10 cc. each, third day four injections of 10 cc. each. The oxygen tent was tried but was discontinued after one hour because the patient could not tolerate it. He also received daily 2,000 cc. of isotonic solution of sodium chloride intravenously. Frequent warm saline mouth and throat irrigations were found to be helpful in easing the patient's general discomfort.

On the last evening the temperature was 106 F., the pulse rate 130 and the respiratory rate 30. Purpura and Cheyne-Stokes respiration developed. At 2:30 a. m. on March 4 the patient had a two minute convulsive seizure followed by cessation of respiration. Permission for autopsy was not secured.

COMMENT

Acute agranulocytosis was fatal to a youth who had received a total of 159 Gm. of succinylsulfathiazole over a period of seventeen days. The patient had demonstrated reactions on two previous occasions while taking sulfathiazole and concomitantly receiving injections of killed typhoid bacilli. Though the first episode of fever might have been due to the injection of killed typhoid bacilli, the second febrile reaction was undoubtedly due to sulfathiazole. On the second day following the administration of succinylsulfathiazole a fever developed which persisted for four days. As succinylsulfathiazole is partially hydrolyzed to sulfathiazole,[7] this febrile response no doubt was due to a sensitization to sulfathiazole, which sensitization manifested itself during the second course of administration of the drug. However, with continued administration of succinylsulfathiazole the temperature, pulse, respiratory rate and white blood cell count became normal, so it was believed that his intolerance to the drug had ceased. For eight days the patient was asymptomatic with a normal temperature and white blood cell count. His final febrile response began with the injection of killed typhoid bacilli. Acute agranulocytosis began when he had taken 159 Gm. of succinylsulfathiazole and continued to termination in spite of treatment which had cured attacks of acute agranulocytosis in rats fed succinylsulfathiazole.[8] Sensitivity has been shown to be present not only when there has been an interruption in the course of medication [9] but also when there has been a prolonged administration of large doses of the drug.[10] Both of these conditions were present in this case.

University Hospital.

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8. Spicer, S. S.; Daft, Floyd S.; Sebrell, W. H., and Ashburn, L. L.: Prevention and Treatment of Agranulocytosis and Leukopenia in Rats Given Sulfanilylguanidine or Succinylsulfathiazole in Purified Diets, Pub. Health Rep. **57:** 1559-1566, 1942.

9. Kracke, R. R.: Relation of Drug Therapy to Neutropenic States, J. A. M. A. **111:** 1255-1259 (Oct.) 1938.

10. Long, Haviland, Edwards and Bliss.[1] Rinkoff and Spring.[1] Curry.[4]

INSUFFICIENCY OF ADRENAL CORTEX COMPLICATED BY HYPERTHYROIDISM

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The physiologic relationships of the thyroid and adrenal glands, studies of which were initiated by Marine and Baumann [1] and by Davis and Hastings,[2] have been reviewed by Lerman.[3] There is considerable evidence that patients with hypofunction of the adrenal cortex may be thrown into a crisis by administration of thyroid,[4] that thyroxine produces enlargement of the adrenal cortex and that other and often antagonistic correlations exist between these endocrine organs.

The clinical association of hyperthyroidism and insufficiency of the adrenal cortex has been noted but rarely. With the possible exception of 1 of 3 cases reviewed by Etienne and Richard [5] and a more probable example described by Plá and Fabregat,[6] we have been unable to find any references to the proved coexistence of these two diseases. Three cases have been described with a previous history of thyrotoxicosis and the subsequent development of Addison's disease,[7] and 5 others have been reported with the clinical picture of a toxic goiter in which the diagnosis of hypoadrenalism was also made but with little justification and no confirmatory evidence.[8]

Because of the physiologic antagonisms as well as the rare clinical association, it becomes of interest to report a case in which hyperthyroidism and hypoadrenalism were simultaneously present.

FIRST ADMISSION

History.—M. G., an unmarried Irish woman aged 26, entered the Presbyterian Hospital in October 1940 complaining chiefly of nausea, vomiting, weakness and loss of weight for nearly two years. Her father and mother both died of cancer of the gastrointestinal tract. Three brothers and one sister were living and in good health. There was no recognized exposure to tuberculosis or family history of thyroid disease. Bilateral ovarian cysts were removed in 1937 without subsequent disturbance of the menstrual function. Otherwise she had always been well.

Two years before admission she began to experience nausea after meals and decreased her food intake; she also had excessive flatulence and belching, with an occasional dull midepigastric pain. She lost weight and strength progressively, her normal weight of 125 pounds (56.7 Kg.) falling to 90 pounds (41 Kg.). Six months before entry weakness was so pronounced that she was virtually confined to bed and almost fainted whenever she got up. The systolic blood pressure then was reported to be 65 mm. of mercury. For four months there had been increasing "dirty yellow" pigmentation of the face and extremities without any exposure to direct sunlight. Pyuria was discovered by her physician about this time, although she had no urinary complaints. Six weeks before admission cough and pain developed in the right anterior part of the chest. She was presently admitted to another hospital, where after three

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5. Etienne, G., and Richard, G.: Maladie de Basedow et addisonisme, Rev. franç. d'endocrinol. **4:** 1-11 (Feb.) 1926.

6. Plá, J. C., and Fabregat, A.: Sindromes endócrinos pluriglandulares: Hipertiroidismo asociado a insuficiencia suprarrenal crónica, Arch. urug. de med., cir. y especialid. **1:** 351-355 (Dec.) 1932.

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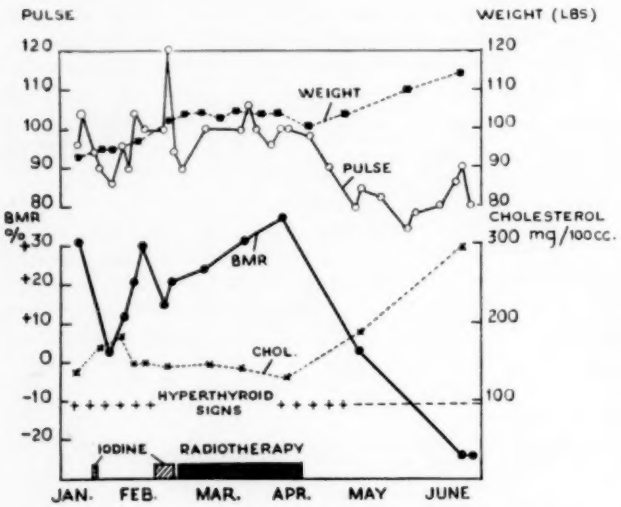
days of vomiting she went into profound collapse, with unconsciousness, high fever and hypotension so extreme that the blood pressure could not be obtained. Vigorous therapy with adrenal cortex extract and infusions of saline solution and dextrose led to rapid improvement. Transfer to the Presbyterian Hospital was arranged for further observation.

Physical Examination.—On admission the temperature was 99 F., pulse rate 100, respiratory rate 20 a minute and the blood pressure 95/65. She was fairly well developed but poorly nourished and appeared tired and chronically ill. There was no dyspnea, orthopnea, pallor, cyanosis, jaundice or edema. The skin of the head, neck and extremities showed moderate brown pigmentation; the mucous membranes of the mouth were not pigmented. The eyes, ears, nose and throat were normal. There was no generalized enlargement of the lymph nodes. The thyroid gland was easily palpable but did not appear enlarged. The lungs were resonant; a few fine rales were heard in the fifth right intercostal space posteriorly. The heart was not enlarged and had a regular rhythm; no murmurs were heard. The abdomen was soft and nontender; the liver, spleen and kidneys were not felt. Pelvic and rectal examinations gave negative results. The deep tendon reflexes were equal and active.



Patient's course during second admission to the hospital.

Laboratory Data.—Urinalysis showed a specific gravity of 1.017 and no dextrose, albumin or bile; the sediment contained occasional leukocytes. The red blood cell count was 4,810,000 per cubic millimeter, hemoglobin concentration 13.4 Gm. per hundred cubic centimeters, and the white blood cell count 7,900 per cubic millimeter, with a differential count of neutrophils 55 per cent, lymphocytes 42 per cent, monocytes 2 per cent and eosinophils 1 per cent. The blood Kline test was negative. The erythrocyte sedimentation rate was 66 mm. in the first hour. The basal metabolic rate was plus 19 per cent. Chemical analysis of the blood serum gave the following values per hundred cubic centimeters: protein 7.2 Gm., albumin 4.4 Gm., globulin 2.8 Gm., nonprotein nitrogen 26 mg., calcium 11.4 mg. and cholesterol 197 mg. The fasting blood sugar was 75 mg. per hundred cubic centimeters. The serum sodium measured 138.3 milliequivalents per liter and the serum potassium 4.4 milliequivalents. X-ray examination of the lungs showed peribronchial thickening in the left first interspace interpreted as healed or inactive tuberculosis and an irregular, sharply demarcated area of increased density in the lower part of the right upper lobe thought to represent an active tuberculous process. Films of the urinary tract demonstrated flecks of calcium over the upper poles of the kidneys in the position of the adrenals, and a few small flecks of calcium density projected through the right kidney shadow. A film of the heart taken at 2 meters showed it to be of normal size and configuration. Roentgenograms of the skull were not abnormal. Fasting gastric contents concentrated and then injected into a guinea pig did not produce tuberculosis in the test animal.

Course.—The temperature ranged between 98.6 and 100 F. After three days on a regular diet without added salt and without injections of adrenal cortex extract she became very weak and began to vomit. The blood pressure then was 86/50, and the serum sodium concentration had fallen to 133 milliequivalents per liter. The injection of desoxycorticosterone acetate[9] combined with intravenous infusions of saline and dextrose produced prompt and striking improvement in her condition, and the insufficiency of the adrenal cortex was thereafter well controlled by daily subcutaneous injections of desoxycorticosterone acetate plus the oral administration of enteric coated sodium chloride tablets. Because of the elevated basal metabolic rate (plus 19 per cent, plus 20 per cent) and gross twitchings of the arms and legs, the possibility of hyperthyroidism was considered. After ten days' treatment with sodium iodide (10 drops daily) the basal metabolic rate was plus 15 per cent, and no subjective change was noted. She had no fine tremor, and no eye signs of hyperthyroidism were observed. Repeated films of the chest showed no significant change in the lesion of the right upper lobe. After nine weeks she was transferred to a sanatorium.

SECOND ADMISSION

History.—She remained in the sanatorium for a year. Tubercle bacilli were found in the sputum occasionally and were also present in the urine. She entered the Presbyterian Hospital again in January 1942 for reappraisal, feeling much improved over her state on the previous admission and without specific complaints. She had continued to take desoxycorticosterone acetate. Her appetite was excellent, although at times she vomited undigested food. The twitching and nervousness were much less than before.

Physical Examination.—The arterial blood pressure was 108/60. She was well developed but rather thin, did not appear ill and was very restless. Pigmentation of the skin was not striking, but there were now several small areas of brown pigment on the right side of the tongue and on the buccal mucous membrane. There was slight symmetrical and diffuse enlargement of the thyroid gland. The eyes were bright and somewhat prominent, with a definite stare; there was some lid lag on downward gaze. Convergence was normal. The palms were warm and moist. There was an inconstant fine tremor of the outstretched hands. Resonance was diminished in the right interscapular region, but no rales were heard. The heart was normal. The abdomen was normal. The deep tendon reflexes were equal and active.

Laboratory Data.—Urinalysis on admission showed a specific gravity of 1.019 and no dextrose, albumin or bile; the sediment contained 5 to 8 white blood cells per high power field (centrifuged specimen). A specimen of urine obtained by catheterization on January 10 showed albumin 1 plus; the sediment was loaded with white blood cells in clumps. Frequent urinalyses thereafter on routine specimens and on those secured by catheterization showed usually albumin 1 plus (although occasionally none was found) and white blood cells in the sediment varying from 5 to 50 per high power field. The red blood cell count was 3,970,000 per cubic millimeter, the hemoglobin concentration 12.3 Gm. per hundred cubic centimeters and the white blood cell count 8,250, with a normal differential count. The erythrocyte sedimentation rate was 38 mm. in the first hour. The guaiac test on the stool was negative. The blood Kline reaction was negative. Chemical examination of the blood serum on January 9 gave the following results: protein 6.2 Gm., albumin 3.7 Gm. and globulin 2.5 Gm. per hundred cubic centimeters and sodium 139.8 milliequivalents per liter. The blood nonprotein nitrogen was 30 mg. and the fasting blood sugar 99 mg. per hundred cubic centimeters. Roentgenograms of the chest showed little change from the previous admission; films of the upper part of the abdomen showed the calcification in the region of the adrenals and the right kidney to be unchanged. Culture of the urine yielded Staphylococcus albus. Three twenty-four hour collections of urine on successive days were centrifuged separately; in two of the three specimens acid fast bacilli were demonstrated. A healthy guinea pig injected with a sample of the sediment from a twenty-four hour collection of urine failed to develop tuberculosis.

9. The desoxycorticosterone acetate used in the treatment of this patient was supplied by Dr. R. D. Shaner of Roche-Organon, Inc., Nutley, N. J.

Course.—Five days after admission bilateral ureteral catheterization was done; no acid fast bacilli were found in the sediment of the urine obtained from either kidney. Following this procedure pain in the lower part of the abdomen, nausea and vomiting developed. The next day her temperature rose to 102.6 F. Because of the possibility that an addisonian crisis might be impending, she was treated with an extra injection of 7 mg. of desoxycorticosterone acetate, an intravenous infusion of 1,000 cc. of 5 per cent dextrose in 0.85 per cent saline solution and the oral administration of 1 cc. of compound solution of iodine and 2 Gm. of sulfadiazine, with prompt subsidence of fever and disappearance of the symptoms. In the ten days after this single dose of iodine her basal metabolic rate fell from plus 31 per cent to plus 3 per cent, and the serum cholesterol rose from 138 mg. to 182 mg. per hundred cubic centimeters. After three weeks these values had returned to their former levels. She now received a dose of 1 cc. of compound solution of iodine daily for ten days, but no improvement in the clinical signs of hyperthyroidism was observed, and the basal metabolic rate and serum cholesterol concentration failed to change toward the normal levels as they had before. In the face of definite clinical and laboratory evidence of thyroid overactivity treatment to diminish thyroid function was indicated. Roentgen therapy was considered to be preferable to partial thyroidectomy, as the complicating insufficiency of the adrenal cortex materially increased the hazards incident to surgery. Accordingly she received a course of eight x-ray treatments to the anterior portion of the neck over the thyroid gland at the rate of 100 roentgens a treatment (130 kilovolts, 4 milliamperes; tube-skin distance 16 inches; filter 3 mm. aluminum). The dosage at the final treatment was double that of the others, to make a total of 900 roentgens. At the end of the course of roentgen therapy she was unimproved, but three weeks later there had occurred striking diminution in tremor, nervousness and stare and the basal metabolic rate was then plus 3 per cent. Two months after treatment was completed clinical improvement was even more striking, the basal metabolic rate was minus 24 per cent and she had gained 13 pounds (6 Kg.).

Throughout her hospital stay the insufficiency of the adrenal cortex was controlled by the daily subcutaneous injection of 4 mg. of desoxycorticosterone acetate and the oral administration of 3 Gm. of sodium chloride in enteric coated tablets. The arterial blood pressure and the serum sodium concentration remained at all times within normal limits. An x-ray film of the chest made on June 12 showed no appreciable change in the pulmonary lesion during her hospital stay. When she was allowed out of bed several weeks before discharge she complained of lumbar backache. Careful x-ray studies of the spine failed to demonstrate any lesions suspected of being tuberculous, and since the pain subsided spontaneously a complicating Pott's disease seemed unlikely. After five months in the Presbyterian Hospital she was discharged to return to the sanatorium for further care of the pulmonary tuberculosis.

COMMENT

There was no doubt that this patient had Addison's disease, probably due to tuberculosis. The weakness, gastrointestinal symptoms, hypotension, pigmentation, calcification in the adrenal areas, systemic reaction and fall in the concentration of sodium in the serum following the withdrawal of salt from the diet were characteristic. Furthermore, the subsequent dramatic response to therapy with desoxycorticosterone acetate and sodium chloride substantiated the diagnosis of insufficiency of the adrenal cortex with certainty.

At first the added presence of hyperthyroidism was merely suspected. However, the appearance on the second admission of a diffusely enlarged thyroid, nervousness, stare and lid lag, tremor and hot moist skin together with an elevated basal metabolic rate on repeated determinations and a cholesterol level below normal made the clinical picture complete. Added confirmations were the rapid response of the basal metabolic rate and cholesterol after a single dose of iodine and the complete disappearance of all clinical and laboratory manifestations of hyperthyroidism following roentgen therapy.

It is of interest that this patient, with established hyperthyroidism and hypoadrenalism, was able to withstand the possible consequences of these combined disorders. It is of particular interest that hypoglycemic reactions, which might be anticipated on theoretical grounds, did not appear. A prominent feature of her course was the subjective improvement in strength and sense of well-being that followed irradiation of the thyroid, almost as pronounced as the clinical response after therapy had been instituted to alleviate the adrenal insufficiency induced by the withdrawal of salt.

A SERIOUS COMPLICATION OF CAUDAL ANESTHESIA

MAURICE J. SMALL, M.D., PARSONS, W. VA.

Because of the widespread interest and enthusiasm now being shown in caudal anesthesia for obstetrics, this case is reported as a warning of its most serious complication, namely high spinal anesthesia, even though a technic was used which was designed expressly to avoid this complication.

A secundigravida aged 23, whose previous medical and obstetric history was noncontributory except for a syphilitic infection acquired five years previously but adequately treated and with negative serologic and spinal fluid findings at present, was admitted in active labor with the cervix three fingerbreadths dilated and the head in midpelvis, the presentation being left anterior oblique. The membranes were intact. Blood pressure was 120/80. The general medical examination revealed no abnormalities. Caudal anesthesia was begun immediately, the technic recommended by Hingson and Edwards [1] being used with one modification designed to minimize the danger of depositing the metycaine solution in the subarachnoid space. This procedure was devised at the obstetric division of the Sinai Hospital, Baltimore,[2] and it utilizes the ordinary intravenous drip arrangement for a slow continuous flow of anesthetic solution instead of the injection of large quantities of solution at intervals. It is the contention of the originators of this modification that when the bottle containing the anesthetic solution is placed about 4 or 5 feet above the level of the patient the rate of flow of the solution will be between 60 and 100 drops per minute if the needle is in the caudal space but 150 drops or more a minute if it is in the subarachnoid space. They maintain further that a test dose of 8 cc. injected as recommended by Hingson and Edwards,[1] if it is in the subarachnoid space, would cause serious and alarming reactions.

With this technic, and a rate of flow of metycaine solution of 60 drops per minute with no pinch clamp applied to the tubing, excellent caudal anesthesia was obtained in twenty minutes. My patient made rapid progress and at the end of one hour was fully dilated, the membranes were ruptured and the head was just on the perineum. The patient was smiling, talkative and cooperative. Rather suddenly she appeared to become drowsy, closed her eyes, rolled her head from side to side, gave several gasps and became apneic and rapidly cyanotic. Her teeth were tightly clenched, and it was with considerable difficulty that her jaw was pried open and a mouth gag inserted. Heart sounds were rapid and barely audible. The blood pressure could not be obtained. The needle was immediately withdrawn from its supposed position in the caudal space, but it was noted before doing so that the rate of flow had not accelerated; in fact it was only about 50 drops per minute. One hundred per cent oxygen was given and nikethamide injected intravenously. Artificial respiration was applied. After about three minutes the patient began to breathe and the cyanosis began to clear. The pulse became stronger and slower. The baby was extracted by forceps while resuscitative measures were being applied to the mother and was normal in every respect, crying immediately after delivery. The patient did not regain consciousness to the point at which she was cooperative for half an hour, and when tested at this time she displayed a complete sensory anesthesia extending as high as the lower axillary line. There was complete motor loss of the extremities. From this point on her convalescence was exactly like that of any other patient receiving a spinal anesthetic.

From the Tucker County Hospital.

1. Edwards, W. C., and Hingson, R. A.: Continuous Caudal Anesthesia in Obstetrics, Am. J. Surg. **57**: 459-464 (Sept.) 1942.
2. Personal instruction was given by Dr. Nathan Block, resident in obstetrics, Sinai Hospital, Baltimore.

The total amount of metycaine solution used was 90 cc. over a period of about one and one-half hours. Since the rate of flow was slow throughout this procedure, even though it came from a reservoir bottle at a level of 5 feet above the patient, with unobstructed outflow, the question arises as to whether it is possible for the anesthetic solution to diffuse into the subarachnoid space, even though the needle is properly placed in the caudal canal.

This case is reported as a note of warning to the many physicians who are now employing caudal anesthesia in obstetrics. I wish to stress the importance of having a patient receiving such anesthesia move her toes frequently, since this is one of the first functions to be lost during spinal anesthesia.

Special Article

REPORT OF THE COMMITTEE ON HEALTH PROGRAMS

OF THE FORTY-FIRST ANNUAL CONFERENCE OF THE U. S. PUBLIC HEALTH SERVICE WITH THE STATE AND TERRITORIAL HEALTH OFFICERS

ARTHUR T. McCORMACK, LOUISVILLE, KY., CHAIRMAN; CHARLES F. DALTON, BURLINGTON, VT.; F. J. HILL, BISMARCK, N. D.; PAUL J. JAKMAUH, BOSTON; THURMAN B. RICE, INDIANAPOLIS; JAMES R. SCOTT, SANTA FE, N. M.; F. D. STRICKER, PORTLAND, ORE.

Since the beginning of the national defense program, the deficiencies in physical fitness of our young men and women have been one of its most outstanding and discouraging developments. We wish to emphasize that it will remain discouraging so long as we fail to develop a program which will build up and maintain physical fitness in fathers and mothers, in infants and school children, in youths of both sexes, in our productive adult population and in our older people. There are no short cuts to improving the physical fitness of a people. Improvement in this situation can be had only by a carefully planned, long-range program for the purpose of providing (1) wholesome physical environment, (2) adequate nutrition, (3) modern medical and dental services available to the people in response to their needs, (4) control of communicable disease, (5) elimination of hereditary defects, (6) sound mental hygiene and (7) effective industrial health procedures.

Many forces, social and economic, as well as medical and scientific, must combine to make such a program possible. While its effect can be observed and measured only with the passing of decades, this affords us no excuse for delay in inaugurating practicable plans which would be acceptable to our people and which would secure their complete understanding and cooperation.

The medical profession of this country, including its public health agencies, has reason to be proud of its accomplishments, which are reflected in our morbidity and mortality rates. As great as these accomplishments have been, however, they afford no excuse for blindness as to our present needs or delay in starting to satisfy them. Experience in preceding years and in former wars should make physicians and health officers realize that in many of our congested industrial and war areas we are face to face with health hazards of great potentiality. These hazards bear heavily on our minds in view of our depleted resources in manpower. All states and localities have contributed many of their best qualified physicians, including health officers, engineers, nurses, technicians and educators, to the armed forces. Today, because of this shortage, too many of our health departments have little more than skeletal organizations. Further depletion of trained personnel will be disastrous. All health officers should make every effort to establish the essentiality of each key person in their departments and of each essential physician in their jurisdiction. There is no question that medical care and public health services have justified their existence in peacetime. There is even less question that they are doubly necessary in time of war, when both endemic and epidemic diseases threaten the maximal labor productivity which is demanded of all workers. The shortage of trained public health personnel makes it incumbent upon each health officer to begin planning at once to circumvent the public dangers which confront his people. Such planning may be aimed at (1) recruitment and training of professional personnel for public health work, (2) recruiting and training of lay personnel for subprofessional aides, (3) rearranging health jurisdictions wherever it is possible to improve efficiency and equalize distribution of services so as to demand less strain on national, state and local budgets, (4) elimination of services when they are merely traditional and (5) distributing personnel in critical areas, especially in extracantonment zones and in war industrial areas, including always farming areas and food processing industries. Health officers must be confronted with and feel great responsibility about the problem of shortage of practicing physicians in many areas. The Surgeon General of the United States Public Health Service is to be congratulated on having participated with the Procurement and Assignment Service of the War Manpower Commission and the American Medical Association in developing between these agencies a joint approach to the solution of this problem. State health officers should realize that, when this program is activated by the Congress with an appropriation, it will be necessary for them to follow through with official requests to the Surgeon General for personnel to be detailed to those areas where it is evident that need exists. It is feared that the problem of redistribution of physicians and dentists, already important, will become increasingly so. It will probably become so acute as to require far more drastic action than has been felt necessary up to the present time.

The shortage or absence of hospital services in many jurisdictions is rapidly increasing the number of persons requiring home nursing care. It may well be that this will make it necessary for state and local health officers to consider the extension of old and the establishment of new bedside or visiting nursing services in many communities. The shortage of registered nurses is developing as rapidly as that of physicians, and a visiting nursing service can frequently be handled during such an emergency most economically if the visiting nursing work is a part of the regular public health program and under the general direction of the local health officer.

We view with considerable alarm the announced plans of the armed forces to take over the physically fit outputs of the medical schools of this country in order to assure to the armed forces a continuing flow of young physicians. It is apparent that it is impossible for our people at home to be served over a very long period by the older physicians who have been kept at home. When it is realized that the portion of each graduating class which will be available for the civilian population will replace only one fourth of those who die or become incapacitated, this procedure becomes one

that must receive serious attention from interested civilian and professional groups.

We urge, first, that the matter of assuring adequate medical facilities, supplies and equipment for civilians be immediately surveyed, so that the people may be assured that adequate provision will be made for these needs; and, second, that, having in mind the necessary redistribution of population following the war, a study be inaugurated in each state and community as to the needs for (*a*) medical, dental, nursing and other professional personnel and (*b*) facilities for making the services of such personnel of real value to the people they will serve, these service facilities to include additions to existing hospitals, health centers, clinics and offices. In such a survey the medical, dental and nursing organizations should be fully represented.

In the distribution of physicians, both now and after the war, it is essential that there be agreement as to principles and procedures among the American Medical Association, the Public Health Service, the Children's Bureau and state medical and health organizations. Such an agreement can be brought about by a meeting of minds under the auspices of the Procurement and Assignment Service and the Health and Medical Committees serving in an advisory capacity to the administrators of the Federal Security Agency. It is the considered judgment of the State and Territorial Health Authorities that adequate scientific medical care and health protection for all the people is a necessity. With statesmanlike leadership on the part of those who represent the people, whose needs are involved, and the professions, who are the only ones that can supply these needs, the whole suggestion of regimentation or socialization of medicine can and should be definitely and completely placed in the limbo of utopian and impracticable schemes. The freedom of the American people to choose their own physicians should be safeguarded as one of the essentials of free life.

During the present war emergency, in view of the increasing shortage of physicians, dentists and nurses in the important farming and industrial areas, we approve the principle that the location of physicians within a given governmental unit should be the initial responsibility of the county or township, under the leadership of the county medical society and the local health officer. When these cannot solve their local problem, it should be referred to the state. The state medical association, the State Procurement and Assignment Service and the state health organization should make by joint action every possible endeavor to provide for the necessary relocation. In instances in which this is impossible, and we anticipate that there will be an increasing number of them, necessary legislation should be sought, so that the states can call on the Public Health Service for such federal assistance as may be found imperative. Sometimes the solution will be found by so increasing facilities that they will invite the relocation of physicians. In other instances it will be necessary to provide temporary financial assistance to cover the expenses of the removal and maintenance of the physician, dentist or nurse until he or she becomes self sustaining. In some critical sections, over varying periods of time, a considerable proportion of all the expenses of medical and health care will necessarily have to be borne by the federal government. In certain other instances during the emergency, and we trust they will be rare, the whole medical care and public health program will have to be rendered by officers of the service during a long enough period, with a sufficiently constructive plan, to enable the population of such localities to resume control of their own health and medical personnel under traditional standards. All investigations and all plans should be made by the Procurement and Assignment Service of the War Manpower Commission, the Public Health Service and the Children's Bureau, representing the federal government, and by local, state and national medical organizations, representing the profession, and by county and state health organizations, representing the people.

We wish especially to emphasize the importance of an intensified program for the control of tuberculosis. The plan of providing for custodial care in sanatoriums of infectious cases requiring quarantine to prevent the spread of the disease should be continued. It is of the utmost importance that hospitals for the care of early cases of tuberculosis be provided wherever they are necessary. Confronted by the present demand for manpower, such hospitals, with their necessary personnel, would mean that thousands of our young people can be restored to economic usefulness by prompt treatment which we cannot afford to neglect. In this connection, both the medical profession and the public should bear in mind that procedures for the finding of early minimal cases have been so simplified and perfected and the effectiveness of collapse therapy and other surgical procedures have been so successfully improved that the average treatment period in tuberculosis hospitals has been reduced from approximately two years in 1935 to six months or less at the present time.

Many public and private health services are limited because of shortage of professional personnel. The need for some of these services can be reduced through health education of the people in urban and farm homes and within industrial and war plants. Health education, the purpose of which is to secure the participation of an informed and participating public, becomes, therefore, the most realistic approach for fulfilling the needs of our people. The impelling motive for sustained health —patriotism, winning the war, sufficient income for self support, increased usefulness and productivity—are present now as never before, and this unusual necessity for and desirability of health education should be planned and carried on intensively at the local level. It must reach every one in the community, from the poorest to the richest. It must enlist the maximal understanding participation of the individuals who compose a community.

To be successful in health education, more attention should be given:

1. To the employment of personnel skilled in educational technics and informed of the facts of preventive medicine. Such personnel in local health departments can be secured because personnel capable of performing this task can be found among those not essential to the military forces.

2. To the provision of local health department budgets for the purchase of health education materials.

3. To the integration of health education with the whole plan of public education, through those responsible for primary and higher education.

As programs advance, the need for trained health educators to give leadership in this field will become acute. Health officials should anticipate this need by providing training now to possible leaders.

The paramount importance of a local, state and national nutrition program has been definitely demonstrated. With twenty federal agencies having inchoate and duplicating responsibilities for a share in the devel-

opment of this program, it is recommended that the primary responsibility for its development be placed in the Department of Agriculture. There are already a farm agent and a home economic expert in almost every county. Under the existing confusion at the federal level, they are compelled to spend so much of their time conferring with one another and somebody else that the results of the really great knowledge they have too rarely gets into the pots and pans or on the tables or in the mouths of the people. All state health departments should have those specially qualified in the medical aspect of this problem to consult with and sometimes irritate out of their routine those who should be made solely responsible for an adequate feeding program for the nation. We have an abundance of food. We can multiply this abundance indefinitely, but nothing will be accomplished unless this food is distributed so that the people have access to it and are taught how to select, cook and serve those things necessary for the preservation of healthy life.

The war has brought into bold relief the paramount importance of industrial hygiene. In the development of a health program for each state, we recommend that careful consideration should be given to the following suggestions:

The Industrial Hygiene Bureau should survey and evaluate industrial health hazards in all plants.

Potential exposures to toxic materials should be analyzed quantitatively to determine actual risk to the health of workers.

Engineering services should be extended to all plants having hazards in order to secure control.

Physicians should be stimulated to report all occupational diseases in order that investigation of the working environment may be made and corrective measures taken.

The bureau should sponsor more and better plant medical departments and augmented nursing service within industry.

The bureau should make available, through cooperation with other agencies, undergraduate and postgraduate study of industrial medicine.

It should work in the closest harmony and spirit of cooperation with the committees on industrial health of the national, state and county medical societies.

It should study occupational disease incidence and medical absenteeism recording and reporting and be able to make recommendations to industrial management.

The bureau should be available at all times for consultative service to private physicians on occupational diseases.

It should sponsor industrial programs on nutrition, venereal disease, dental services and the rehabilitation of sick or injured workmen.

Special plant studies should be made on sanitation, illumination, heat and humidity, noise, shock and other causes of fatigue and recommendations made to management.

A continuous and never ending educational program should be inaugurated to labor, to management and to the public to correct bad health, preserve good health and maintain industrial production, happiness and good will.

From the address of Dr. G. W. Cox, the distinguished state health officer of Texas, on Environmental Sanitation, we make the following additions to the public health program:

Since this nation will probably be confronted with a serious postwar unemployment and health problem, it appears most highly desirable that we now plan a definite health program along environmental lines so fundamentally sound and attractive that it will be acceptable to individuals, communities, states and the nation as a whole. Therefore, in conclusion, the writer would like to recommend that plans and estimates be prepared now which can be utilized the moment labor supply becomes available and before the health problems become acute. These plans and estimates should cover at least in part the following projects:

1. Local health centers with laboratory and equipment to house local health personnel so as to enable sanitation forces to function at their maximum efficiency.
2. Plans for water supplies and treatment where needed.
3. Sewerage system and treatment works where needed.
4. Municipal or cooperative abattoirs.
5. Municipal or cooperative oyster shucking and shellfish packing establishments.
6. Municipal or cooperative canning or food processing plants.
7. The recruitment and training of more sanitation personnel to carry forward sanitary work not only at home but in our sister republics to the south and in occupied countries (as a matter of fact, on a worldwide basis).
8. The planning of drainage systems where such drainage will minimize the mosquito borne disease problem.
9. The planning of a mutual aid program in rodent control in rat stoppage of buildings.
10. The planning of a cooperative program on garbage disposal.
11. The planning for the elimination of slum areas and making available adequate housing for the population.
12. The planning of a program which will provide adequate lighting, heating and ventilation facilities in public buildings but more especially in our schools.
13. An advisory program that would be helpful to industries in the elimination of industrial hazards.
14. Promulgation of plans which will insure our farm population safe living conditions patterned somewhat after the Farm Security Administration program which provided aid in the correction of farm water supplies, waste disposal systems, screening and the like.
15. Setting up short training schools for food handlers, water and sewage plant operators as well as swimming pool operators, operators of food processing plants such as pasteurization plants and hygienists for industrial plants.
16. The initiation of immediate steps toward securing an appropriation to the Public Health Service of necessary funds, in lieu of Lanham Act funds, to inaugurate and carry out a direct emergency program of community sanitation, as has already been done in the case of malaria control.

From the address of the president, Dr. Carl V. Reynolds, the state health officer of North Carolina, we recommend for the consideration of the United States Public Health Service and of each state health department the following suggestions in regard to mental health:

The incidence of mental illness constitutes a challenge which should stimulate us to better and wider application of our increased and increasing knowledge in this field. Psychiatry has now developed to the point where manifestations of mental disturbance can be detected in their incipience and so treated as to prevent the condition from becoming permanent. We are devoting too much effort to custodial care and too little to preventive measures.

Psychosis, in its broad interpretation, is a serious menace to our economic and social order. Inmates of our mental hospitals—state, federal, local and private—aggregate more than half a million. In 1940 first admissions to these hospitals totaled upward of 100,000 and these admissions are increasing year by year.

Our immediate approach to the problem should be to treat, first, patients without psychoses, mental deficiency, alcoholism, drug addiction and personality disorders, and, then, those with psychoses, dementia paralytica and the like. Solution of the problem demands sound organization, functioning intelligently and conscientiously.

To this end, the following recommendations are offered:

1. Community surveys of the prevalence of persons with psychoses, the surveys to include study of all hospital records in the community selected.

2. Community psychiatric service, through mental hygiene clinics, throughout the country. Early diagnosis is the key to success. The patient's environment is the rational place to start correctional measures.

3. Rehabilitation of the psychotic, with and without psychoses, with emphasis on those without psychoses.

4. Elimination of the overlapping of agencies in the mental, social and physical fields. Medical agencies should direct, with the social and physical agencies cooperating under medical direction.

5. Better distribution of environmental, social and medical care, with individual attention to the psychotic.

6. More attention to etiology and prevention and less to custodial care and cure.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

AUSTIN E. SMITH, M.D., Secretary.

VIOFORM (See New and Nonofficial Remedies, 1942, p. 96).

The following additional dosage form has been accepted:

CIBA PHARMACEUTICAL PRODUCTS, INC., SUMMIT, N. J.

Vioform Vaginal Inserts: Each insert contains vioform 250 mg., lactic acid 25 mg., boric acid 100 mg. and diluent to make 2 Gm.

RIBOFLAVIN (See New and Nonofficial Remedies, 1942, p. 559).

The following additional dosage forms have been accepted:

ABBOTT LABORATORIES, NORTH CHICAGO, ILL.

Capsules Riboflavin: 5 mg.

Tablets Riboflavin: 5 mg.

POISON IVY EXTRACT (See New and Nonofficial Remedies, 1942, p. 20).

The following preparations have been accepted:

ABBOTT LABORATORIES, NORTH CHICAGO, ILL.

Poison Ivy Extract: Packages of two 1 cc. ampoules. Each cubic centimeter contains 4.5 mg. of desiccated oily resin in a mixture of sweet almond and peanut oils.

Fresh leaves of Rhus toxicodendron are extracted with methanol. The solvent is removed in vacuo. The residue is dissolved in isopentane and decolorized by agitation with magnesium trisilicate. The solvent is removed in vacuo, and the residue is dissolved in a sterile mixture of sweet almond and peanut oils containing chlorobutanol, so that the finished solution contains 4.5 mg. of the residue per cubic centimeter and 0.5 per cent W/V chlorobutanol.

PITMAN-MOORE COMPANY, INDIANAPOLIS

Poison Ivy Extract with Sterile Diluent: 1 cc. vial, marketed in a package also containing three 0.9 cc. vials of sterile diluent consisting of a sterile isotonic salt solution containing procaine hydrochloride 0.5 per cent and chlorobutanol 0.4 per cent.

Fresh leaves of Rhus toxicodendron, dried at temperatures not exceeding 60 C. and sieved to remove stems and leaf midribs, are macerated with absolute ethyl alcohol, using 20 cc. of alcohol for each gram of dried leaves. The extract is filtered through paper, then diluted to five times its original volume by adding absolute ethyl alcohol.

TETANUS TOXOID (See THE JOURNAL, June 12, 1943, p. 441).

The following dosage form has been accepted:

E. R. SQUIBB & SONS, NEW YORK

Tetanus Toxoid: 1 cc., 3 cc. and 30 cc. rubber diaphragm capped vials.

DIGITALIS (See New and Nonofficial Remedies, 1942, p. 265).

The following additional dosage form has been accepted:

SHARP & DOHME, INC., PHILADELPHIA

Tablets Digitalis: 0.1 Gm. (1½ grains) (1 U. S. P. unit).

SODIUM MORRHUATE (See New and Nonofficial Remedies, 1942, p. 290).

The following additional dosage form has been accepted:

BURROUGHS WELLCOME & CO., INC., NEW YORK

Hypoloid Sodium Morrhuate Injection 5%: 25 cc. rubber capped bottle. Each cubic centimeter contains sodium morrhuate 0.05 Gm. and 0.5 per cent of phenol as a preservative.

THIAMINE HYDROCHLORIDE (See New and Nonofficial Remedies, 1942, p. 555).

The following additional dosage form has been accepted:

DRUG PRODUCTS COMPANY, INC., LONG ISLAND CITY, N. Y.

Pulvoids Thiamine Hydrochloride: 3 mg.

CAFFEINE AND SODIUM BENZOATE (See New and Nonofficial Remedies, 1942, p. 294).

The following dosage forms have been accepted:

BURROUGHS WELLCOME & CO., INC., NEW YORK

Hypoloid Caffeine and Sodium Benzoate Injection: 0.5 Gm. (7½ grains) in 2 cc.

Hypoloid Caffeine and Sodium Benzoate Injection: 0.25 Gm. (3¾ grains) in 1 cc.

THE WARREN-TEED PRODUCTS CO., COLUMBUS, OHIO

Sterilized Solution Caffeine with Sodium Benzoate 25%: 15 cc. rubber stoppered vials. Each cubic centimeter contains 0.25 Gm. (3.86 grains) caffeine with sodium benzoate; chlorobutanol 0.5 per cent added as a preservative.

Council on Foods and Nutrition

ACCEPTED FOODS

THE FOLLOWING ADDITIONAL FOODS HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO ACCEPTED FOODS.

OFFICE OF THE COUNCIL.

PREPARATIONS USED IN THE FEEDING OF INFANTS (See Accepted Foods, 1939, p. 156).

Nestle's Milk Products, Inc., New York.

DEXTROGEN, whole cow's milk evaporated and modified by the addition of dextrins and maltose; contains whole milk solids, dextrins and maltose, disodium phosphate and ferric ammonium citrate.

Analysis (submitted by manufacturer).—Water 68.6%, ash 1.2%, butterfat 6.3%, protein (N × 6.38) 5.5%, total carbohydrates (by difference) 18.4%, calcium 0.2%, phosphorus 0.2%, iron 0.0015%.

Calories.—1.54 per gram and 43.6 per avoirdupois ounce.

Vitamins.—The firm claims the following values per avoirdupois ounce of Dextrogen:

115 U. S. P. units of vitamin A.
0.033 mg. of vitamin B_1 (thiamine).
0.35 mg. of vitamin C (ascorbic acid).

Mead Johnson & Company, Evansville.

PABENA, a Pablum-like preparation of a single grain product; contains 85 per cent oatmeal, malt syrup, whey powder, bonemeal, sodium chloride and yeast.

Analysis (submitted by manufacturer).—Carbohydrate (by difference) 69.8%, protein 14.0%, moisture 8.0%, minerals (ash) 4.8%, fat (ether extract) 2.0%, crude fiber 1.4%, calcium 0.80%, phosphorus 0.74%, iron 0.03%, copper 0.001%.

Calories.—3.5 per gram; 100 per ounce.

Vitamins.—The firm has supplied evidence that this product furnishes 0.3 mg. of thiamine per ounce.

H. J. Heinz Company, Pittsburgh.

HEINZ STRAINED APPLESAUCE—SUGAR ADDED.

Analysis (submitted by manufacturer).—Total solids 16.2%, total sugar as sucrose 12.8%, reducing sugar as invert 8.9%, acidity as citric 0.38%, protein (N × 6.25) 0.20%, fat (ether extract) 0.05%, crude fiber 0.7%, ash 0.2%, total carbohydrates other than crude fiber (by difference) 14.7%, calcium 44.0 mg. per kilogram, phosphorus 32.0 mg. per kilogram, iron 1.5 mg. per kilogram, copper 1.7 mg. per kilogram.

Calories.—0.5 per gram; 14 per ounce.

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SATURDAY, JULY 3, 1943

EXPERIMENTAL SELECTIVE NECROSIS OF THE ISLANDS OF LANGERHANS

Dunn, Sheehan and McLetchie[1] have recently recorded the discovery that certain chemical substances can cause a sharply selective necrosis of the islands of Langerhans in the pancreas, with characteristic physiologic effects and symptoms. The exocrine parenchyma of the pancreas is left untouched. This remarkable effect was observed first in the course of experiments on the production of certain renal lesions by styryl-quinoline, a synthetic compound foreign to metabolism, and by alloxan, a component of the uric acid molecule.

The study of the effect of styryl-quinoline is limited to the observation that it can cause necrosis of the islands on intraperitoneal injection into rabbits. The action of alloxan on intravenous injection in rabbits has also been studied in detail. A single intravenous dose of 300 mg. per kilogram in an adult rabbit in average state of health and nutrition was found quite certainly to cause extensive necrosis of the islands with characteristic symptoms.

The bodily temperature fell rapidly. The blood sugar, initially 100 to 140 mg. per hundred cubic centimeters, increased considerably for one to two hours and then fell to 100, 50 or even 30 mg. As a rule death resulted in twelve to forty-eight hours with subnormal temperature and extreme hypoglycemia pointing to overproduction of insulin. In the albino rat a lesion similar to that in the rabbit has been produced by the subcutaneous injection of alloxan and by styryl-quinoline. The rabbit and the rat are the only animals mentioned in the present report.

The principal morphologic effect in the experiments on rabbits has been a typical coagulative necrosis in the islands of Langerhans and, as stated, without any changes in the acinar tissue of the pancreas or endocrine glands elsewhere, except in some cases congestion with small hemorrhages in the adrenal cortex and the thymus, and "minor cytological changes in the thyroid." In many of the rabbits the islands of Langerhans were all affected, at least in the central part, with only a ring or a crescent of normal cells at the periphery. The kidneys showed an early tubular nephritis.

Chemical substances have been found which cause such precise changes in the pancreas as to establish that its function with respect to sugar is limited to the islands of Langerhans. To blot out the endocrine elements of the pancreas without injury to the acinar parenchyma is a most significant step in advance for the study of fundamental problems of diabetes.

How is this necrotic lesion produced? Are the cells of the islands stimulated? Can acute necrosis of the islands have any significance for human diabetes? These questions are discussed briefly by the Glasgow investigators. They suggest that the necrosis they have described may be the effect of overstimulation of the islands, the cells dying from "overstrain." The extreme terminal hypoglycemia seems to indicate that, for a time at least, the production of insulin was stimulated. This possibility at once raises the question whether eventually harmless stimulants of island function may not be found which will be of value in the treatment of certain forms or stages of human diabetes.

In human diabetes the lesion of the islands as usually seen is of a chronic, quiescent nature. The cause and mechanism of this lesion are unknown. Is it not possible that it may concern the late or final stages of a process initiated by chemical action on the islands, more or less like that induced by alloxan in rabbits and rats? Alloxan is a natural constituent of the body; it exists in uric acid. A main source of endogenous uric acid is voluntary muscle, which is also the greatest consumer of sugar. This consideration led the Glasgow investigators to ask whether alloxan or a purine which contains it may not be a natural hormone of muscle that regulates and stimulates the activity of the islands of Langerhans.

Considerations like the foregoing all indicate the need of continued and new research in various directions. On this point, the Glasgow investigators state, "so far we can say nothing about the possibility of maintaining animals alive after necrosis of the islands, nor have we obtained chronic lesions by any form of prolonged treatment." The results of new studies on chemical necrosis in the islands under varying conditions in different species of animals will be awaited with great interest.

1. Dunn, Shaw J.; Sheehan, H. L., and McLetchie, N. G. B.: Necrosis of Islets of Langerhans Produced Experimentally, Lancet **1**: 484 (April 17) 1943.

HEREDITY OF CANCER IN MAN

Students of the natural history of cancer in man were early impressed by the possibility that a hereditary factor might exist in its causation. The occurrence of numerous cancers, often of rare types, in certain families sometimes called cancer families, the similarities in type and in time of occurrence of tumors in identical or monochorial twins, the racial peculiarities in susceptibility and resistance to some kinds of cancer and the tendency for some persons to develop more than one primary tumor, seen especially in those who had been cured of one cancer, were suggestive of hereditary influence.

Further investigation was made largely by geneticists who entered the field in the first decade of the present century. Their studies were almost entirely on laboratory animals, especially mice. Large, long range research projects, some of which are still under way, were begun by Tyzzer, Lathrop, Little, Slye, Strong and others. It is impossible to summarize adequately the results of the important studies, but a few general remarks can be made. While in mice a hereditary factor is present in many types of tumor, this factor is neither qualitatively nor quantitatively the same for all types of cancer. A genetic formula which would explain the occurrence of all cancers in animals has not been found. Furthermore, there appear to be species differences in the importance of the hereditary factor. While these studies have helped to define the problems of the role of heredity in human cancer, they have not solved them. They should, however, not be discontinued for that reason.

In contrast to the great effort devoted to the study of cancer in laboratory animals, the study of the heredity of human cancer has lagged, at least in the United States. Large scale, long range investigations have not been reported here comparable to those of Waaler in Norway and Wassink in the Netherlands. The evidence which has accumulated indicates that the importance of hereditary factors is probably different for each type of human cancer, as in mice. Human tumors can be divided into three classes on the basis of our present knowledge in this respect: (1) a group in which a strong hereditary factor is unquestionably present, (2) those in which a hereditary factor is possibly but not surely important and (3) a group in which there is little or no suggestion of a hereditary factor. In the latter two groups a hereditary factor has not been demonstrated, but neither has it been excluded. Retinoblastoma and multiple neurofibromatosis are examples of the first group. All the more common forms of human cancer fall into the second and third groups. These include carcinoma of the stomach, colon, mammary gland, prostate, lung, uterus, biliary system and others.

More knowledge on the role of hereditary factors in human cancer is desirable from the point of view of its own importance as well as for the direction of research in collateral fields. If it could be shown that a hereditary factor is not important in the causation of the major forms of human cancer as, for example, gastric cancer, then full efforts could be devoted to finding the immediate exciting causes, because only by controlling them could this form of cancer be prevented. If it should be shown, however, that a hereditary factor is important in the causation of this cancer, thought should be directed toward nullifying its action by genetic methods. Also known potential victims could be given special clinical observation to discover the early stages, just as care is now taken to discover early tuberculosis in contacts.

The uncertainty regarding hereditary factors in the major kinds of human cancer should be ended. This can be done only by the use of data based on human material. Serious consideration should be given to plans for collecting the necessary data.

IMMUNITY IN MALARIA

Malaria is probably now the prime disease problem of the world. Productive research has been greatly hampered by inability to infect lower animals with any of the human plasmodia and by the absence of a method for artificial cultivation of the parasite. Nevertheless progress has been made in elucidating certain aspects of the disease; even greater advances are foreshadowed by recent research.

Malarial infection, it has been assumed, confers a specific immunity against the infecting parasite. An infected person, even if untreated, generally tends toward recovery.[1] However, as pointed out by Coggeshall[2] in his recently published De Lamar lecture, the immunologic mechanism responsible for the conversion of an acute attack into the chronic form of the disease, the character and location of the various immune responses and the duration of infection and immunity are questions of considerable controversy.

Fortunately for the evolution of knowledge on the immunology of malaria, a malarial parasite, since named Plasmodium knowlesi, was isolated from a cynomolgus monkey in Java in 1927. This parasite, when inoculated into the rhesus monkey, almost invariably produces death. If antimalarial drugs are administered early in the course of the disease, however, the infection becomes chronic. Superinfection produced by the intravenous injection of large numbers of homologous parasites causes inapparent effects and the parasites are removed from the blood stream in the course of a few hours. When such highly immune monkeys are inoculated with Plasmodium inui, a morphologically similar but less virulent parasite, the course of the infection is similar

1. Culbertson, James T.: Immunity Against Animal Parasites, New York, Columbia University Press, 1941, chapter XII, p. 124.
2. Coggeshall, L. T.: Immunity in Malaria, Medicine **22**: 87 (May) 1943.

to that which would occur in a normal previously uninfected monkey. These observations indicate a high degree of species specific immunity and apparently prove that some factor or factors other than a highly activated macrophage system must be involved in malarial immunity. Indeed it has been known since 1937 that protective antibodies can be demonstrated in the serum of rhesus monkeys with chronic P. knowlesi infections. Furthermore it has been shown that relapse in these animals is actually a process of autohyperimmunization (and hence beneficial) rather than a phenomenon wholly detrimental to the host. The evaluation of the humoral factor in malarial immunity is not yet complete; the accumulated evidence demonstrates that malarial immune serum can affect the parasite independent of fixed tissue cells and that the two immunologic mechanisms work concomitantly rather than independently.

The need for an effective biologic preparation against malaria is obvious. Unfortunately there seems little likelihood that a sufficiently broad immunity could be induced by inoculation with any single parasite, even if the technical difficulties of the preparation of such a vaccine could be mastered. Except for the unlikely possibility of the discovery of a new strain of malarial parasite with broad pathogenic immunizing complexes, there is little hope for an effective living or attenuated vaccine in malaria. The conversion of an acute P. knowlesi infection of rhesus monkeys into a chronic one by means of quinine, atabrine or immune serum and its destruction by sulfonamide drugs offers a clue to possibly more effective action. Partially effective immunity may be demonstrated after these measures for approximately six months. Animals thus treated may acquire severe infections when reinoculated but they will survive. Furthermore, the degree of immunity following the eradication of infection does not seem to depend on the previous duration of the disease. These observations tend to disprove the hypothesis that immunity to malarial infection terminates immediately on the disappearance of the infection. Furthermore, the ability of sulfonamide drugs now in current use to eradicate P. knowlesi in rhesus monkeys may have an implication in the problem of human malaria. Although thus far a sulfonamide or similar drug has not been discovered to be as efficient against human infections as they are against P. knowlesi infection in rhesus monkeys, the possibility of discovering some similarly acting chemotherapeutic drug, Coggeshall says, is not remote. If this could be found it would serve as a method of true causal prophylaxis such as is completely lacking at present.

The fact that a form of latent malaria in an experimental animal can be completely destroyed by chemotherapy, that the duration of immunity thereafter is brief and that eradication of an acute infection in its earlier stages leaves the host without immunity gives promise of the anticipated direction of fruitful research of the future. The detection of the specific antimalarial antibodies together with the elucidation of their specific reactions provides a means whereby the different aspects of the malarial problem may be entirely reexamined. Progress in this direction is an urgent need.

Current Comment

THE HEALTH OF YOUNG WORKERS

Many boys and girls of 16 and 17 years and even younger now take full or part time jobs or work during summer vacation periods. In a survey [1] of mortality of young people of 15 to 19 years the death rate from all causes combined (except enemy action) was 35 per cent lower among white boys and 47 per cent lower among white girls in 1942 than the average rates for the preceding three year period. There are, however, some unfavorable spots in the record. The death rate for tuberculosis increased among white males from 15 to 24 years of age and more particularly from 15 to 19, while it decreased at all other ages up to 75. Among adolescent girls aged 15 to 19 the tuberculosis death rate in 1942 continued to decline. The death rate from accidents among white boys from 15 to 19 was 17 per cent higher than in the preceding years. The trend for boys and girls to enter industry is likely to increase at an ever growing rate as the war continues. The health of these young workers should be conserved. Protective laws are the primary safeguards. Boys and girls should not be allowed to work in atmospheres which contain harmful dusts, fumes and gases. Young boys may be crippled by heavy manual labor or by work for long periods in cramped positions. Furthermore, information should be spread that boys of 14 to 17 usually do not possess the required skill or stability to permit them to operate dangerous machines. It must also be realized that farming is a hazardous occupation and that many accidents result from attempting to handle animals or farm machinery without adequate strength or training. Every effort should be made to strengthen the bodies of these young workers.

LUDWIG'S ANGINA

Williams and Guralnick [1] advocate in the treatment of Ludwig's angina early radical surgical intervention, use of sulfonamide compounds, zinc peroxide dressings in the presence of anaerobes and preliminary exposure of the trachea in every case prior to operation, or tracheotomy in the presence of respiratory embarrassment. Intravenous pentothal sodium is recommended as the most satisfactory anesthetic. The mortality in a recent group of 20 cases treated by this method at the Boston City Hospital amounted to only 10 per cent, whereas the mortality in Williams and Guralnick's previous series of 31 cases was 54 per cent. In both groups a dental lesion constituted the predominant etiologic

1. Statistical Bulletin of the Metropolitan Life Insurance Company **24**: 1 (April) 1943

1. Williams, A. C., and Guralnick, W. C.: The Diagnosis and Treatment of Ludwig's Angina: A Report of Twenty Cases, New England J. Med. **228**: 443 (April 8) 1943.

factor—the initiating lesion in 18 (90 per cent) of the latter series. Dental extractions immediately preceded the onset of symptoms in 12. The act of extraction is not so important from the standpoint of etiology as is the preexisting septic tooth or mouth from which the subsequent spread of infection arises. Bacteriologic studies in these 20 cases revealed the presence of streptococci in all and the presence of Vincent's organisms in 50 per cent. Examination was not made for the presence of the microaerophilic streptococcus described by Meleney. Because of the presence of streptococci in all cases, the authors felt that sulfonamides were indicated throughout the disease. However, in their experience chemotherapy alone could not be relied on in these synergistic infections and was regarded by them as secondary to the early radical incision of the area. The sulfonamides were used both generally and locally. In some cases they placed 5 to 8 Gm. of sulfanilamide crystals in the depth of the wound and loosely packed it with iodoform gauze. Meleney's method [2] of treating foul mouth and neck infections with zinc peroxide was found to be most effective in the presence of Vincent's organisms. In such cases dressings saturated with zinc peroxide frequently yielded a clean, odorless wound in a very short time. The prophylactic use of zinc peroxide powder for several days prior to extraction would undoubtedly reduce the number of cases of this formidable infection.

CASTORIA

THE JOURNAL has previously commented on the Castoria incident.[1] A press release entitled "Castoria Mystery Solved; Manufacture Is Resumed," issued June 23 by the Centaur Company Division of Sterling Drug Inc., offers the following explanation for the reactions which occurred following the use of Fletcher's Castoria:

The process of manufacturing Fletcher's Castoria starts with the aqueous extraction of senna, a crude drug. This extract is then added to sugar and other ingredients in a maturing tank for aging. A mild fermentation develops gradually, and the therapeutic values of the product are established with the oxidation of the active principles within it.

A year ago in our Rahway, N. J. plant, Castoria was made with a 20 per cent lower sugar content, and it was up to standard in every respect.

In March and April 1943, to conserve sugar under wartime conditions, we again used the lower sugar content. Our research now discloses that a change in the chemical characteristics of the water, harmless in itself, in combination with the reduced sugar content, interfered with the normal aging process. Fermentation was intensified and speeded up and this retarded normal reoxidation of the active principles. These deoxidized active principles, known as anthroquinones, are known to have an irritant action upon the mucous membranes.

The changes which occurred during the aging of the March and April batches were so subtle that they escaped detection through our chemical testing procedures; indeed, even after the presence of the irritant was known through its effect on persons, its identification and the reason for its presence took weeks of research to determine.

Our research further established that when the deoxidized active principles are brought to their oxidized state, either naturally or artificially, their irritant action is entirely removed, and their laxating values developed.

Now that the cause of the condition has been definitely ascertained, procedures have been put into effect which will assure normal reoxidation of the therapeutically active principles.

As a further safeguard, the finished product will be subjected to added biological, as well as chemical, tests before it is offered for sale.

When Fletcher's Castoria is on sale again, each bottle will bear a laboratory control number, which will relate to the manufacturer's full record of all production data, and the packages will bear a green band instead of a buff one—to avoid confusion with any outstanding stock which may not have been returned.

FUTURE HOSPITAL BUILDING

In an interesting discussion of hospital building in the future, Elcock,[1] an English hospital architect, points out that hospitals have been constructed so far almost exclusively for the curative treatment of disease and injury. At least in details of construction, provision has not been made for the use of hospitals as health centers in a larger sense. In education toward healthful living and the prevention of disease, the hospital has assumed a rather secondary role. Firmly believing that hospitals should more and more become health centers on a broader scale than heretofore, Elcock urges that in hospital construction of the future special consideration be given to the provision of educative and preventive facilities in the form of ambulatory clinics, lecture halls, class rooms, swimming pools, outdoor and indoor gymnasiums and similar facilities. Undoubtedly there will be places and conditions in which such expansion of services would greatly increase the usefulness of hospitals as community or neighborhood health centers, either by themselves or in cooperation and closer integration with health departments and other social institutions. To mention just one specific need, the increasing function of the general hospital as a center of education, diagnosis and treatment in cancer certainly demands thorough study in new hospital construction. In planning for postwar hospitals, the views advocated by Elcock merit attention.

NATIONAL HEALTH AND NUTRITION IN CEYLON

According to a recent report from the Society of Medical Officers of Health of Ceylon,[1] the high incidence of infant and maternal deaths in that country is associated with many other evidences of malnutrition. The main reason underlying the poor state of nutrition is economic. Together with economic improvement the report recommends that essential food requirements be met by adding milk, various grains, animal food—especially fish—and vegetables and fruits to the staple diet of rice, which must be continued. Vitamin A can be supplied by the production of shark liver oil. The ultimate aim, the report points out, should be to provide the population with optimum diets for full physical and mental development.

2. Meleney, F. L.: The Prophylactic and Active Use of Zinc Peroxide in Foul Smelling Mouth and Neck Infections, Ann. Surg. **107:** 32 (Jan.) 1938.

1. The Castoria Incident, Current Comment, J. A. M. A. **122:** 179 (May 15) 1943.

1. Elcock, C. E.: Hospital Building—Past, Present and Future, Proc. Roy. Soc. Med. **35:** 359 (March) 1942.

1. Nutrition in Ceylon: Its Bearing on National Health and Well-Being, Society of Medical Officers of Health, Ceylon, 1942.

MEDICINE AND THE WAR

In this section of The Journal each week will appear official notices by the Committee on War Participation of the American Medical Association, announcements by the Surgeon Generals of the Army, Navy and Public Health Service, and other governmental agencies dealing with medicine and the war and such other information and announcements as will be useful to the medical profession.

ARMY

PROCUREMENT OF PHYSICIANS

A revised procedure for the procurement of physicians, designed to overcome the lag in procurements caused by failure of many of the applications initiated to mature to the commissioned stage, was announced by the Officer Procurement Service of the War Department on June 1. Briefly, the new procedure provides that state Procurement and Assignment chairmen will furnish new lists of "available" physicians to district Officer Procurement Service offices, indicating which physicians have expressed preferences for army or navy duty but have failed to complete processing of applications for commissions. In states where physician procurement is permitted, solicitation of individual applications will then be undertaken by appropriate representatives of the Army, the Navy or the central Procurement and Assignment office. Names of those who, after a reasonable time, refuse or neglect to complete applications for commissions will be furnished to the state director of Selective Service for reclassification. Similar lists are to be furnished and contacts made in states where procurement of physicians is not permitted, looking toward the more active solicitation of all available physicians under 45 years of age.

BILLS OF CIVILIAN PHYSICIANS AND HOSPITALS FOR TREATMENT OF MILITARY PERSONNEL

The Army through its own facilities usually provides complete medical and hospital care for military personnel on the active list. Sometimes, however, soldiers are away from such facilities and emergencies arise when it is necessary to procure civilian medical and hospital treatment. Generally, accounts for such services at reasonable rates are proper public charges but, under the following circumstances, existing law or regulation forbids payment from public funds:

1. When the individual is absent from his station without proper authority or in desertion.
2. When army or other government medical facilities (naval, United States Public Health Service, Veterans Administration, Indian, for example) are available in the vicinity.
3. When the service covers treatment of an individual for a chronic disability or an elective operation for a condition which does not endanger the life of the individual and would not preclude travel or transfer to an army or other government hospital.
4. When the individual is not on the active list of the Army; that is, when he is on the inactive retired list or is a member of the inactive reserve. Selectees who have passed their physical examinations and have been inducted into the Army, but are permitted to go home to arrange their personal affairs before reporting at a reception center for military duty, are listed as "enlisted reserve inactive" and are not entitled to treatment at public expense.

It is well, therefore, for a civilian physician or hospital to ascertain from the patient his exact status in determining whether bills for treatment should be submitted to the Army or to the individual. Bills for treatment of military personnel falling within any of the classifications 1 to 4 should be presented to the individual for settlement from his personal funds; bills for his treatment under other circumstances should be submitted to the Army for consideration.

Bills presented to the Army often give only the name of the patient and the total charge. It is important that bills show the individual's full name, army serial number, rank and organization, his post or station and his status (duty, furlough or leave; if on furlough or leave, the inclusive dates of the furlough or leave should be given). If this information is not stated, much time is lost in trying to identify the soldier, and settlement is delayed. The necessary information can generally be obtained from the soldier himself.

In addition to the information outlined in the preceding paragraph, bills should give the full diagnosis and should show complete itemization of charges with the exact period of the service, the number of visits or days of hospitalization and the rate of charges. Changes for extras not included in the rate for visits or for hospitalization such as x-ray service and medicines, should be itemized and entered separately with sufficient information to permit the audit required in connection with payments from public funds. All bills should be presented in triplicate. It is recommended that bills bear the following certificate signed by the physician or, in the case of a hospital, signed in the name of the hospital by the official authorized to receive and receipt for moneys, his official designation (superintendent, treasurer) to appear below his signature:

> I certify that the above bill is correct and just; that payment therefore has not been received; that the services were rendered and the medicines furnished in the care and treatment of the persons named above; that they were necessary, and that the charges do not exceed those customary in this vicinity.

Unless this signed certificate appears on bills, War Department voucher forms bearing this certificate must be forwarded to claimants for signature before their accounts can be approved for payment.

The itemized certified bill in triplicate, accompanied by the request for treatment (if any) and other pertinent papers, should be forwarded to the commanding officer of the soldier's post. If the post is not known the bill should be forwarded to the commanding general of the service command within the geographic location of the place where the services were rendered, accompanied by all information possible respecting the soldier and the circumstances in the case, in order that necessary investigation may be made with a view to identification of the soldier and payment of the account.

NEW SURGEON GENERAL CONFERS WITH SERVICE COMMANDS

At a three day meeting in Washington in June Major Gen. Norman T. Kirk, recently appointed Surgeon General of the Army, and other general officers discussed plans and programs for the coming year with medical officers of the various service commands, as follows: Col. J. J. Reddy, Boston, First Service Command; Col. C. M. Walson, New York, Second Service Command; Col. T. B. Burnett, Philadelphia, Third Service Command; Col. S. W. French, Atlanta, Fourth Service Command; Col. E. C. Jones, Columbus, Fifth Service Command; Col. Don Hilldrup, Chicago, Sixth Service Command; Col. Neil J. Everitt, Omaha, Seventh Service Command; Col. W. L. Hart, Fort Sam Houston, Eighth Service Command, and Col. Harvard Moore, Fort Douglas, Ninth Service Command. General Kirk gave a description of his recent trip to North Africa, detailing the medical problems encountered during the North African campaign.

HOSPITALS DESIGNATED FOR SPECIAL SURGICAL TREATMENT

The Adjutant General's Office, Washington, D. C., issued the following memorandum on May 20: Memorandum No. W40-9-43, this office, 6 March 1943, subject as above, is rescinded and the following substituted therefor:

1. It has become evident that certain diseases and injuries will require treatment of a surgical nature in which a high degree of specialization is necessary. Patients received from overseas who require the specialized treatment indicated below will be classified by the general hospitals receiving them and reported to the Surgeon General for transfer to designated specialized hospitals. Patients requiring such treatment and whose disability was incurred in the continental United States will be treated in the general hospital to which originally transferred unless, in the opinion of the commanding officer of the hospital, adequate facilities do not exist for their proper treatment, in which case they will be reported to the Surgeon General for transfer to designated specialized hospitals.

2. The following general hospitals have been designated for the specialized treatment indicated:

(a) Chest surgery:
Fitzsimons, Denver.
Hammond, Modesto, Calif.
Kennedy, Memphis, Tenn.
Walter Reed, Washington, D. C.
Brooke, San Antonio, Texas.

(b) Maxillofacial and plastic surgery: Ophthalmic surgery:
Bushnell, Brigham, Utah.
O'Reilly, Springfield, Mo.
Valley Forge, Phoenixville, Pa.
Walter Reed, Washington, D. C.
Letterman, San Francisco.

(c) Blinded casualties:
Letterman, San Francisco.
Valley Forge, Phoenixville, Pa.

(d) Impaired hearing (defective hearing of a degree which precludes the return of the patient to duty):
Walter Reed, Washington, D. C.
Hoff, Santa Barbara, Calif.
Borden, Chickasha, Okla.

(e) Amputation centers:
Bushnell, Brigham, Utah.
Lawson, Atlanta, Ga.
McCloskey, Temple, Texas.
Percy Jones, Battle Creek, Mich.
Walter Reed, Washington, D. C.

(f) Neurosurgery:
Ashford, White Sulphur Springs, W. Va.
Brooke, San Antonio, Texas.
Bushnell, Brigham, Utah.
Fitzsimons, Denver.
Hoff, Santa Barbara, Calif.
Kennedy, Memphis, Tenn.
Lawson, Atlanta, Ga.
Lovell, Fort Devens, Mass.
McCaw, Walla Walla, Wash.
McCloskey, Temple, Texas.
Nichols, Louisville, Ky.
O'Reilly, Springfield, Mo.
Percy Jones, Battle Creek, Mich.
Schick, Clinton, Iowa.
Tilton, Fort Dix, N. J.
Walter Reed, Washington, D. C.

(g) Vascular surgery (major vascular injuries and their sequelae, such as arteriovenous fistulas, aneurysms and peripheral vascular disturbances such as chronic vasospastic conditions, those resulting from frostbite, immersion foot and other conditions producing peripheral circulatory deficiency states but not including minor disturbances, such as varicose veins):
Letterman, San Francisco.
Ashford, White Sulphur Springs, W. Va.

CAPTAIN JADOSZ AWARDED SOLDIER'S MEDAL

The United Press recently reported from General MacArthur's headquarters in Australia that Capt. Frank C. J. Jadosz of the medical corps had been decorated with the Soldier's Medal for gallantry for rescuing wounded fliers from a plane that had crashed with a full bomb load. Captain Jadosz resided in Providence, R. I., where he interned at St. Joseph's Hospital, entering active service in October 1941.

THE NEED FOR MORE ARMY NURSES

Army nurses are now stationed in thirty-five bases outside the United States as well as at 537 stations in the continental United States, the War Department announced on June 1. The need for more Army nurses remains pressing. Recruitment of nurses took an upward trend in the first three months of 1943, but the opening of new hospitals and an increasing number of overseas assignments are depleting the number of nurses in the reserve pool. It is estimated that one out of every four nurses in the nation will be needed by some branch of the armed forces by the end of this year. Courses in military orientation and physical conditioning established throughout the nation for Nurse Corps units generally require four weeks of class room application and drill ground calisthenics at the time the nurses enter the induction centers for enrolment in the corps. Heading the Army Nurse Corps is Col. Florence A. Blanchfield, who was formally appointed superintendent of the corps on June 1. Prior to the retirement of Col. Julia O. Flikke as superintendent of the Army Nurse Corps, she was assistant superintendent, with the rank of lieutenant colonel.

COMMISSIONS FOR WOMEN PHYSICIANS

Women Physicians who are at present either members of the Women's Army Auxiliary Corps or Contract Surgeons may now secure commissions in the Medical Corps, Army of the United States. They should apply to the Office of the Surgeon General, Washington, D. C. If the application is approved after clearance by the Procurement and Assignment Service, it will be forwarded to the Officer Procurement Service for further processing. Members of the WAAC will then secure a release through channels from the Director, Women's Army Auxiliary Corps. Contract Surgeons will be similarly processed except that they will be released by the Commanding General of the Service Command by whom their contracts were effected, or in the case of the Military District of Washington by the Surgeon General.

DR. HENDERSON APPOINTED CONSULTANT

Dr. Elmer L. Henderson, Louisville, Ky., member of the Board of Trustees of the American Medical Association, has been appointed special consultant to the Secretary of War in regard to surgical problems concerning the U. S. Army Air Forces. Dr. Henderson's appointment was made at the request of Brig. Gen. David Grant, the air surgeon. Dr. Henderson will maintain his position on the staff of the Kentucky Baptist Hospital and St. Joseph's Infirmary in Louisville and will go back and forth to Washington at regular intervals for conferences under the jurisdiction of the Surgeon General of the Army. His appointment became effective on May 18.

LENGTHEN M. A. C. TRAINING PERIOD

Beginning with the class which reports for training on July 9, the Medical Administrative Corps Officer Candidate School at the Medical Replacement Training Center, Camp Barkeley, Texas, is lengthening its training period from twelve to sixteen weeks. In announcing this scheduled compliance with a War Department directive, Col. George E. Armstrong, assistant commandant of the Camp Barkeley school, said the new schedules will involve no addition of material but will merely mean a more intensive coverage of the work now included. All departments of the school—training, administration, logistics, tactics, sanitation and chemical warfare—will be allotted some of the extra hours added to the curriculum.

The present field work will be especially affected by the new schedules which have been submitted to the War Department training division. A continuous problem in medical support will be carried out during a six day bivouac for each Camp Barkeley class, and the candidates will practice choosing aid station sites, evacuation routes and other medical installations in simulated battle conditions. The strength of the school, twelve companies, will remain the same, with the result that the output will be slightly decreased. Over six thousand men have already received commissions as second lieutenants in the

Medical Administrative Corps from the Camp Barkeley school. Another large group was commissioned by the school at Carlisle Barracks, Pennsylvania, before the M. A. C. school there closed this spring.

MEDICAL SECTION OF TRAINING SCHOOL DISCONTINUED

The medical section of the AAF Officer Training School at Miami Beach, Florida, has been discontinued, it was announced, early in May. The six weeks program, which was under the direction of Major Sidney Davidson, flight surgeon, was an orientation course for medical officers which also furnished technical and tactical training. There were courses in aviation medicine, treatment of gas casualties, military art, military hygiene and sanitation. The other members of the staff were Capt. R. Beverley Ray, M. C., Capt. Herman W. Roth, M. C., Capt. Thomas J. Eaton, Sanitary Corps, Lieut. Paul S. Anderson, M. C., Lieut. Allan B. Crunden, M. C., Lieut. Victor E. Thompson, M. A. C., Lieut. Fred W. Dixon, M. C., Lieut. Frank J. Pickett, M. C., Lieut. Ronal J. Roemer, D. C., and Capt. Irving S. Gordon, D. C.

GRADUATES AT CARLISLE AND CAMP BARKELEY

Graduation exercises were held on June 4 at the Medical Field Service School, Carlisle Barracks, Pennsylvania, for fifty-nine officers of the medical department, following completion of a course of training for particular assignments in medical battalions of a new infantry division. Of the class forty-six were members of the medical corps, twelve of the medical administrative corps and one of the dental corps. Twenty-eight members of the class had graduated previously from a basic course at the Medical Field Service School, and nine other members had previously attended special cadre training classes at Carlisle.

Physically hardened and well trained for duty with troops in the field, 268 officers of the army medical department graduated at the Field Service School at Carlisle Barracks, Pennsylvania, June 17. The physicians, dentists, veterinarians and members of the sanitary and medical administrative corps who composed this class proceeded to their new stations immediately after the ceremonies.

The seventeenth class of the Medical Administrative Corps Officer Candidate School at the Medical Replacement Training Center at Camp Barkeley, Texas, graduated on June 9. The new lieutenants who were chosen from the ranks were given special training in administration, supply, personnel, sanitation, evacuation and training. Among those commissioned were fifteen Negroes. The graduating address was given by the school commandant, Brig. Gen. Roy C. Heflebower.

THREE HUNDRED AMERICANS DIE IN JAPANESE PRISON CAMPS

Messages through the International Red Cross from Japan have notified the War Department of the names of more than 300 American soldiers who have died in prison camps since the fall of Bataan and Corregidor. Disease is stated in each case as cause of death. Malaria, diphtheria, dysentery and pneumonia are the major causes. Some cases of beriberi are reported. Earlier, more than 300 deaths due to battle wounds had been reported from Japanese sources. The deaths by disease are out of a total of 11,307 army personnel thus far reported as prisoners of war of Japan.

PROMOTIONS AT FORT CUSTER

The commanding officer at Fort Custer, Michigan, recently announced the following promotions of medical officers at the Station Hospital: commanding officer, Lieut. Col. John G. Slevin to colonel. Colonel Slevin has been commanding officer of the hospital since October 1942; Capt. Allen W. Byrnes, M. C., assistant chief of the neuropsychiatric section, to major; the following first lieutenants to captains: Keith B. Appleby, William E. Nesbitt, Henry A. Hanelin, Elmer H. Tofteland, Claude M. Eberhart.

PRISONERS OF THE JAPANESE

The War Department has announced, according to the *Military Surgeon,* that Lieut. Col. W. Hinton Drummond and Major Eugene C. Jacobs, both of the medical corps, were held as prisoners of war by the Japanese. Lieutenant Colonel Drummond went to the Philippines from Walter Reed General Hospital in Washington in 1940 and was serving at the Sternberg General Hospital in Manila when the war broke out. Major Jacobs was serving at the headquarters of the Sixth Corps Area in Chicago in 1940 when ordered to the Philippines, where he served as post surgeon at Camp John Hay at Baguio.

Mr. and Mrs. Benison, Flint, Mich., have been notified that their son, Lieut. Arthur L. Benison of the medical corps of the Army of the United States, has been located in a Japanese prison by the International Red Cross. Dr. Benison was on duty with a medical field unit on Bataan and has been carried as missing in action for more than a year. Dr. Benison graduated from the University of Michigan Medical School in 1937.

AVIATION PHYSIOLOGISTS

The eighth class of Aviation Physiologists graduated at the School of Aviation Medicine, Randolph Field, Texas, on May 29. The five weeks course treats of the effects of lowered barometric pressure, anoxia, the effect of flight on man, the operation of low pressure chambers, the use of oxygen equipment and high altitude indoctrination and classification. Among the graduates were the following physicians: Major Marco A. Gaxiola, Capts. Joseph Ney and Hurley L. Motley, and 1st Lieuts. Edward H. Ahrens, James Goodfriend, Sidley D. Leo, Robert J. McNeil and Dennison Young.

THE BAXTER GENERAL HOSPITAL

Baxter General Hospital in Spokane, Wash., 5 miles northwest from the center of the city, is located in a pine grove on a high, wedge shaped plateau of land formed by a sweeping curve of the Spokane River. The hospital is named in honor of Jedediah Hyde Baxter, Civil War surgeon, whose appointment as Surgeon General on Aug. 16, 1890 was terminated by his untimely death on December 4 of that year. Baxter General Hospital was activated on Aug. 21, 1942. Originally planned as a 1,000 bed cantonment type hospital, it was within two weeks ordered enlarged to 1,500 bed capacity. Construction began on July 7, 1942 and includes about 150 buildings. The next few months should find the hospital ready for full activities.

The commanding officer is Col. A. B. McKie, U. S. Medical Corps, and the executive officer is Lieut. Col. Charles H. Bremlitt, Medical Corps. The staff of medical and dental officers came from all corners of the country. As of April 24 the officers thus far assigned were:

MAJORS

Edwin S. Bennett, M. C., Operations and Training Officer.
Henry S. Campbell, M. C., Chief, Dermatology and Outpatient Clinic Section.
Henry B. Elkind, M. C., Chief, Neuropsychiatric Section.
Wayland K. Hicks, M. C., Chief, Urology Section.
Robert D. Johnson, M. C., Chief, Dental Service Branch.
Nicholas E. Lacy, M. C., Chief, Eye, Ear, Nose and Throat Service Branch.
John J. Loutzenheiser, M. C., Chief, Orthopedic Section.
Charles H. Manlove, M. C., Chief, Laboratory Service Branch.
Russell F. Miller, M. C., Chief, X-Ray Service Branch.
Everett B. Muir, M. C., Chief, Eye Section.
Merritt H. Stiles, M. C., Chief, Medical Service Branch.
Maurice A. Walker, M. C., Chief, Surgical Service Branch.

CAPTAINS

Murray M. Berger, M. C., Chief, Eye, Ear, Nose and Throat Section.
Robert T. Boyd, M. C., Orthopedic Section.
Maurice V. Laing, M. C., General Surgery Section.
Estel B. McCollum, M. C., Septic Surgery Section.
George J. McHeffey, M. C., Pathologist.
George M. Pike, M. C., Chief, Officers Section.
Wallace P. Sheely, M. C., General Surgery Section.
Walter R. Springstun, M. C., Registrar.
J. Ray Van Meter, M. C., Neuropsychiatric Section.

LIEUTENANTS

Sidney S. Epstein, M. C., Ophthalmologic Surgery.
Robert L. Rein, M. C., Receiving and Disposition Officer.
Herman L. Rudolph, M. C., Physical Therapy Section.
Elizabeth M. Beedles, A. N. C., Chief Nurse.
Catherine W. Camper, A. N. C., Anesthetist.
Loreine V. Stroup, A. U. S., Dietitian.
Dorothy M. Eagon, A. U. S., Physical Therapy Aide.

MISCELLANEOUS

CALL FOR UNUSED X-RAY EQUIPMENT

The Safety and Technical Supplies Division of the War Production Board has issued a statement calling on physicians and dentists throughout the country to release their x-ray equipment not now in use in order to provide sufficient x-ray equipment for civilian needs.

"Members of the medical and dental professions going into the armed services and all others who are temporarily not using their x-ray apparatus are urged to dispose of it," Francis M. Shields, director of the Division said. "The demands for this equipment by the armed forces are heavy and will necessarily increase. Moreover, production is limited by shortages of critical materials, skilled workers, and other factors. It is imperative that every item of x-ray equipment should be kept at work.

"Doctors and dentists who are not now using their apparatus should sell it, not only as a patriotic duty but also as a matter of self interest. Because of rapid developments that are taking place, the doctor who stores his equipment when he goes to war may well find that it is obsolescent and of no use to him when he returns to civilian life and private practice. He can far better serve both his country and himself by letting some one else use it now, when it is so greatly needed.

"An inventory of used x-ray equipment available for sale is being compiled by the Safety and Technical Supplies Division, and well over a thousand items are already registered. All owners of idle apparatus are asked to report to the Division, on Form WPB 1976, giving complete data about the equipment, its condition and selling price. Some of the equipment already registered is too old or broken down to be of use; what is needed is apparatus capable of active service but now idle. Doctors, dentists, distributors, etc., looking for used equipment are in turn asked to make their needs known to the Division, so that their requests may be checked against apparatus that is for sale.

"Under the terms of Limitation Order L-206 issued in October 1942," Division officials explained, "the sale of new x-ray equipment is registered to the armed forces and civilian purposes approved by WPB."

EXHIBIT OF AERIAL PHOTOGRAPHS IN CHICAGO

The British Consul General, Mr. W. H. Gallienne, and the trustees of the Museum of Science and Industry issued invitations to a private viewing of an exhibition of aerial photographs at the Museum of Science and Industry in Jackson Park, Chicago, on July 2 between 10 a. m. and 5 p. m. These much enlarged photographs had just arrived from Britain and although some of them had been on view in the offices of the combined chiefs of staff in Washington, they had not been seen elsewhere in this country. They include among others photographs of the bombing of Berlin and of the Moehne and Eder dams. Officers of the Royal Air Force were present to explain and interpret the exhibition.

THE STUDENT WAR NURSING RESERVE

The first meeting of the advisory committee of the Student War Nursing Reserve set up by the Bolton-Bailey act was held on June 25 in Washington, D. C. According to an announcement by Dr. Thomas Parran, Surgeon General, U. S. Public Health Service, under whom the war emergency project will be administered, Miss Lucille Petry and Mrs. Eugenia Spalding, both on the nursing education staff of the U. S. Public Health Service, have been appointed director and associate director respectively of the new program. Dr. Parran pointed out that the act was drafted with the cooperation of nurse training institutions, hospitals, the nursing profession and governmental agencies.

Money will be paid quarterly in advance in the amounts estimated in order to enable hospitals to carry out the provisions delegated to them by the act. Rules and regulations for postgraduate and refresher courses under the Bolton-Bailey act will be similar to those that have been in operation under the "Training for Nurses" (national defense) law. Payment to student nurses will be made through schools of nursing on the basis of the plan submitted by schools to the Surgeon General, U. S. Public Health Service, and approved by him. The law sets forth the requirements which must be incorporated in the plan. The bill passed without a dissenting vote in both the House of Representatives and the Senate, and was signed by President Roosevelt on June 15.

WARTIME GRADUATE MEDICAL MEETINGS

An additional group of tentative programs of Wartime Graduate Medical Meetings, a preliminary list of which was given in THE JOURNAL, June 5, page 382, has now been prepared.

The suggested six hour schedule on aviation medicine is under the direction of Lieut. Col. W. Paul Holbrook. The program is to include general orientation on the flight surgeon's work and discussions of the eye, ear, nose and throat, mouth and teeth, cardiovascular system, gastrointestinal system, genitourinary system, psychiatry and skin as they relate to aviation medicine. There are to be also discussions of the general problems of high altitude physiology, including anoxia, bends and exposure to cold.

Chemotherapy is under the direction of Dr. Chester S. Keefer. The program is to include the treatment of bacterial meningitis, prevention and treatment of wound infections with sulfonamides, treatment of gastrointestinal and genitourinary infections, as well as respiratory infections with sulfonamides, and sulfonamide toxicity and sensitization.

The national consultant on clinical dermatology is Dr. Chester N. Frazier. The subjects suggested include care of the skin and interpretation of disease, problems of acute infections of the skin and problems of minor trauma and hypersensitiveness of the skin.

The program on the dysenteries is under the direction of Lieut. Col. Thomas T. Mackie. The suggested program includes discussions of classification, geographic distribution, military importance, epidemiology and control of the dysenteries, and discussions of bacillary dysentery, amebiasis, other intestinal protozoal infections and helminthic dysentery.

Dr. David P. Barr is national consultant for hypertension and nephritis and diseases of the blood. The former will include discussions of the clinical manifestations, complications and management of hypertension, nephritis, glomerulonephritis, nephrosis, pyelonephritis and nephrosclerosis. Diseases of the blood will include those involving the red cells, those involving the white cells and the hemorrhagic states.

The program for physical therapy is under the direction of Dr. Frank H. Krusen. It is to include discussions of physical agents commonly employed in medical practice such as heat, electrotherapy, light and hydrotherapy. The clinical applications of physical agents with special reference to military medicine are also to be discussed.

Psychosomatic medicine is under the direction of Dr. John Romano. There is to be general orientation, followed by clinical discussions of organ and system syndromes and special emphasis on the applications of psychosomatic medicine to military problems.

The program on laboratory medicine, for which Dr. Roy R. Kracke will serve as national consultant, is divided into six suggested six hour schedules which could be given consecutively or individually.

The program on acute respiratory disease is under the direction of Dr. Francis G. Blake. It is to include discussions of epidemiology, clinical considerations of the acute upper respiratory infections, influenza and pneumonia and the prevention of these and their complications.

The national consultants for shock, burns and plasma are Comdr. Lloyd R. Newhouser and Lieut. Col. Douglas D. Kendrick. The suggested six hour schedule consists of two hours devoted to shock, two and one-half hours devoted to burns and one and one-half hours devoted to blood derivatives.

The program on chest surgery, which is under the direction of Dr. Leo Eloesser, includes a considerable amount of time

devoted to the physiology of chest injuries and discussions on the prevention of infection and on the treatment of infection.

Dr. R. A. Vonderlehr is consultant for the schedule on venereal diseases. Under this program both syphilis and gonorrhea will be discussed from the standpoint of control, prophylaxis, diagnosis and treatment.

ADDITIONAL ALLOTMENT IN ILLINOIS FOR OBSTETRIC CARE TO WIVES OF SERVICE MEN

The state director of public health of Illinois, Dr. Roland R. Cross, announced on June 15 that the U. S. Children's Bureau had granted his request for an additional June allotment of $86,000 to be used in paying physicians and hospitals for obstetric care to the wives of service men and pediatric care to their infants in case of acute illness. The demand for this service has increased greatly. In May alone the Illinois Department of Public Health authorized care for about 550 cases, or nearly as many as were authorized in the preceding six months. The regulations governing this project in Illinois, as approved by the state medical society, provide that the applications for this medical care should be signed both by the service man's wife and by the licensed physician of her choice and submitted to the state department of public health in advance. The necessary forms may be obtained from local health and welfare offices and Red Cross chapters or directly from the State Department of Public Health at Springfield.

PUBLIC HEALTH UNDER HITLER

Le Nouvelliste de Lyon of April 1 complains of the unnecessary difficulties encountered by expectant mothers in order to obtain special pregnancy cards. They have to waste many hours, detrimental to their health, in going to distant offices, queueing and so on just for red tape formalities. The practice is contrary to the official profamily campaign.

The *Journal officiel*, France, of April 4 carries the text of a law laying down the conditions under which the secretary of state for health will call up chemists, doctors and dentists for the "relevé" (draft). Repatriated prisoners or those who on account of their age or their families are unable to comply will be granted exemption. Doctors, chemists or dentists who are liable to be called up under the "relevé" will be chosen by the high council of the medical profession (Conseil supérieur de l'Ordre des médecins).

NPD, Poland, of April 6 reports from Cracow: The successful fight against typhus (fleckfieber) in the Cracow district is making further progress. Mobile hot air chambers go from place to place to delouse people in the infected dwellings which have been discovered. Four emergency hospitals are ready to receive infectious cases and are able to cope effectively with the epidemic even when widespread. Leaflets, illustrated advertisements and exhibitions constantly draw the attention of the population to the dangers of typhus and the methods of meeting it.

What applies to military operations will apply all the more to the opening up and settlement of the East. This is the field of action of geomedicine, Prof. Dr. Heinz Zeiss explains in the *Zeitschrift für Geopolitik* of the science of topographic medicine (raumbezogene medizin), which has to fulfil tasks without which the military, political, cultural and economic opening up of the East would be impossible. It deals with research into the relations as regards time and place between the development of disease and topographic features. A campaign against infectious diseases is impossible without a map, and thus it is one of the most urgent tasks to compile a reliable atlas of epidemic diseases. It will render great service to the military and civilian health services in the East. A number of examples (sweating sickness, poliomyelitis, cholera, tularemia) show even at this early stage how close is the relationship between the topographic nature of a region and the occurrence of epidemic diseases. It can be shown that waves of epidemic diseases come to a halt at certain definite geographic and biogeographic features. Science in turn will be able to draw conclusions regarding areas of a similar nature and thus take preventive measures. The development of the science of geomedicine thus opens wide fields of fruitful collaboration among the civilized European nations.

NDZ, Germany, of April 8 states that numerous volksgenossen have repeatedly shown their interest in the question of how air raid protection during alerts is carried out in hospitals. The accommodation of the patients is arranged in accordance with the nature of their disease, under a decree of the reich air minister quoted by the Sirene. Seriously ill patients must never be put on the upper floors, as it would be difficult to carry them from there to the air raid shelters. Only patients who can be easily moved or are able to walk may be put in these rooms. During air raid warnings the latter category have to go to the air raid shelters which have been set up in the basement for the hospital staff and patients who are not confined to their beds. The seriously ill confined to beds and patients who cannot be easily moved are from the outset to be put in wards which are specially protected against splinters and left there during the alert unless special arrangements have been made for these patients by order of the reich air ministry. The ARP measures in hospitals are constantly being checked and improved in accordance with the latest experience.

According to *Svenska Dagbladet*, Stockholm, of April 10 the German authorities have now confiscated Trondheim Hospital and the patients have been removed to private houses which have been requisitioned from the civilian population, preferably from the opposition. The Red Cross hospital has been fitted up as a surgical department, while the medical department has been moved to Hispegaten and the epidemic department to the Craftsmen's Home for the Aged. Tuberculous patients have still nowhere to go, but requisitioning for them is proceeding.

According to *Nationaltidende*, Denmark, of April 8 the diphtheria epidemic at Nooresundby is regarded as very serious. Of 40 patients, 13 have already died. The health authorities urgently request Aalborg municipality to take immediate precautions. This new diphtheria has been caused by war conditions of a hitherto unknown and serious character. The germs spread quickly, poison the patient and paralyze the heart. Mayor Jorgensen of Aalborg has agreed to summon the epidemics board on April 9 but continues to be skeptical regarding general vaccination for the children of the municipality.

The Berlin correspondent of *Svenska Dagbladet* of April 1 writes that it looks very much as if the German birth rate will be stimulated by the duty of women to work. A reader of the *Schwarze Korps* takes up this problem and accuses certain German women of preferring to have a child rather than work in a factory, as expectant mothers are exempt from the duty to register. Thus there are women who have not had any children for ten years but who are suddenly becoming pregnant. But the newspaper, which is usually very severe, does not agree with the writer. "The state expected this development. The war losses must be balanced and the population must be increased to such an extent that the conquered living space can also be filled with German life. The conception that work comes before children would cause a national catastrophe. We need children, who are as important as anything else, and this fact is quite indisputable."

"Another population problem which has become acute as a result of the war is marriage. War causes everything which is bad and rotten to decay more quickly and it is so in marriage." This statement by the newspaper is quite correct and tallies with the latest population statistics, according to which the number of divorces on the grounds of adultery have increased by 1.2 per cent among men and by 13.4 per cent among women.

ORGANIZATION SECTION

MEDICAL LEGISLATION

MEDICAL BILLS IN CONGRESS

Changes in Status.—S. 636 has been reported to the Senate, a bill to amend the United States Employees' Compensation Act so as to bring postmasters within the purview of that act. The Senate Committee on Education and Labor has voted to report favorably S. 1130, a bill to provide for the care of children of mothers employed in war areas. H. R. 986 has passed the House, proposing to amend Veterans Regulation No. 10 so as to redefine, for compensation and pension purposes, the term "misconduct" and to limit the meaning of that term to felonious misconduct. H. R. 997 has passed the House, to amend certain provisions of the National Defense Act of June 3, 1916 by eliminating the Medical Administrative Corps in the Medical Department of the Regular Army and substituting therefor a Pharmacy Corps. H. R. 2536 has passed the Senate, with amendments, proposing to provide for the promotion of vocational rehabilitation of persons disabled in industry or otherwise. H. R. 2935 has been reported to the Senate with amendments, a bill making appropriations for the Department of Labor, the Federal Security Agency and related independent agencies for the fiscal year ending June 30, 1944. The Senate Committee on Appropriations recommended that there be eliminated from the bill the proviso that no part of any appropriation made for the Children's Bureau in the bill "shall be used to promulgate or carry out any instruction, order or regulation relating to the care of obstetrical cases which discriminates between persons licensed under state law to practice obstetrics." H. R. 2936 has passed the House, authorizing an additional $200,000,000 for expenditure under the Lanham act for the construction of schools, waterworks, sewers, sewerage, garbage and refuse disposal facilities, public sanitary facilities, works for the treatment and purification of water, hospitals and other places for the care of the sick, recreation facilities, and streets and access roads.

Bills Introduced.—S. 1168, introduced by Senator Reynolds, North Carolina, provides that on and after July 1, 1943 each member of the various selective service local boards, each government appeal agent and each examining physician who assists in the administration of the Selective Training and Service Act shall be entitled to receive compensation for his services at the rate of $600 per annum, payable monthly. S. 1250, introduced by Senator Reynolds, North Carolina, and H. R. 3021, introduced by Representative May, Kentucky, propose to repeal section 2 of the act approved May 17, 1926, which provides for the forfeiture of pay of persons in the military and naval service of the United States who are absent from duty on account of the direct effects of venereal disease due to misconduct. H. R. 3011, introduced by Representative O'Konski, Wisconsin, proposes to authorize an appropriation of $25,000,000 for the relief of resort owners and for sending convalescing veterans to resorts at a per diem, weekly or monthly rate to be agreed on by the Veterans' Administration and the resort owners.

WOMAN'S AUXILIARY

Arizona

At the annual meeting of the Woman's Auxiliary to the Arizona State Medical Association in Tucson, May 1, Mrs. E. M. Hayden assumed the presidency, succeeding Mrs. Harlan P. Mills. Mrs. James H. Allen of Prescott was elected president-elect. Mrs. Frank N. Haggard, President of the Woman's Auxiliary to the American Medical Association, was guest speaker at the luncheon at the home of Mrs. Samuel H. Watson. Lieutenant Colonel W. J. Kennard, commanding officer of Davis-Monthan Field at Tucson, talked to the assembly on "The Flight Surgeon in the Combat Zone."

California

"Wartime Medicine in the South Pacific" was discussed before the Alameda County auxiliary at a recent meeting. Lieutenant Robert Dennis Lee (MC), U. S. Navy, spoke on "The Practice of Medicine Under Combat Conditions." Lieutenant Beth Veley of the Army Nurse Corps, one of the last persons to leave Bataan, discussed the care of the sick and wounded at Bataan and their escape.

At the meeting of the Los Angeles, Long Beach, Glendale and Pasadena auxiliaries, Mr. Boyd Comstock spoke on the "Italian Reaction to Nazi Domination." Mr. Comstock formerly assisted the Italian government in its program for the development of young Italian athletes.

A five hundred word essay contest was sponsored by the Woman's Auxiliary to the California Medical Association among California high school students on the subject "Fight Cancer with Knowledge."

Georgia

The first doctors' aide corps organized by the auxiliary to the Fulton County Medical Society under the presidency of Mrs. Edgar H. Greene has its headquarters and the principal laboratory of the Blood Type Registry at the Academy of Medicine, 875 West Peachtree Street, N. E., Atlanta. The corps is composed of doctors' wives who, after completion of a series of health education and civilian defense lectures, work in one of four specialized avenues of endeavor. Of the 205 eligible auxiliary members, 143 registered for the doctors' aide course. At the Academy of Medicine, February 3, Dr. Thomas Parran, Surgeon General of the United States Public Health Service, accepted the invitation extended him by Mrs. Greene, to inspect the Blood Type Registry.

Missouri

The nineteenth annual meeting of the Woman's Auxiliary to the Missouri State Medical Society was held in St. Louis in April with Mrs. Frank L. Davis, president, presiding. One hundred and fourteen members attended this meeting. Guest speakers were Dr. Morris Fishbein of Chicago, Editor of THE JOURNAL, Dr. H. L. Kerr, president of the Missouri State Medical Society, and Mrs. Frank N. Haggard, President of the national auxiliary. Mrs. R. C. Haynes, Marshall, is president for the coming year and Mrs. J. B. McCubbin, Fulton, is president-elect.

OFFICIAL NOTES

SUMMER HEALTH HINTS

The next three programs for the new series of broadcasts over WLS on Thursdays at 2:45 p. m. under the title "Summer Health Hints" will be as follows:

July 8. "Insects."
July 15. "Poison Oak or Ivy."
July 22. "Keeping Cool."

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

CALIFORNIA

Physician Needed.—A resident physician aged 21 to 55 to assist in the care and treatment of patients in the Los Angeles County General Hospital in the anesthesiology service is being sought by the Los Angeles County Civil Service Commission. Applications will be accepted from graduates of an approved medical school who have completed or who are now completing a one year's internship in an approved hospital. There will be no written examination. Candidates will be rated on their professional training and experience and their aptitude and personal suitability for advanced training in the specialty of anesthesia as evidenced by investigation and interview. Full information may be secured from the office of the Commission, Room 102, Hall of Records, Los Angeles 12, California. Applications must be received on or before Wednesday, July 14.

DELAWARE

Twenty-Five Years in State Service.—On May 2 Dr. Mesrop A. Tarumianz observed the twenty-fifth anniversary of his association with the Delaware State Hospital, Farnhurst. The state journal reported that in 1918 he was appointed assistant physician. In 1925, after serving as assistant superintendent, he was made medical director. In 1926 he became superintendent of the hospital and in 1929 director of the mental hygiene clinic and state psychiatrist and criminologist.

Society News.—Dr. Jacob A. Bargen, Rochester, Minn., addressed the Academy of Medicine, Wilmington, May 21, on "The Varieties of Ulcerative Colitis: Their Relation to the Current War and Their Management."——Dr. George J. Boines discussed the Kenny treatment of infantile paralysis before the New Castle County Medical Society at a meeting in Wilmington recently. Drs. Charles E. Wagner and Lewis B. Flinn participated in the discussion; all are of Wilmington.

GEORGIA

Graduate Clinics Canceled.—The annual postgraduate clinics sponsored by the Emory Medical Alumni Association will not be held this year. The clinics are usually held in June.

State Medical Election.—Dr. Cleveland Thompson, Millen, was chosen president-elect of the Medical Association of Georgia at its annual meeting, May 14, and Dr. William A. Selman, Atlanta, was installed as president. Dr. Edgar D. Shanks, Atlanta, is the secretary-treasurer. The next annual session will be held in Savannah, May 9-12, 1944.

ILLINOIS

Personal.—Dr. George W. Nesbitt, Syracuse, received a fifty year certificate and gold emblem on March 25 at a dinner of the De Kalb County Medical Society. Dr. Clifford E. Smith is secretary of the society.——Dr. Philip D. McGinnis has been appointed health officer of Joliet.

Chicago

Personal.—Mr. J. Dewey Lutes, formerly superintendent of the Presbyterian Hospital, has been named administrator of a new general hospital to be erected in Bethesda, Md., with funds provided by the Lanham act.——Dr. Oswald H. Robertson, professor of medicine at the University of Chicago School of Medicine, has been elected to membership in the National Academy of Sciences.——John M. Storm, associate editor and chief editorial writer of the Cleveland *News*, has been named managing editor of *Hospitals*, effective May 1. *Hospitals* is the official publication of the American Hospital Association.

Cancer Prevention Clinic.—A cancer prevention clinic for women has been opened at the Women and Children's Hospital, 1600 West Maypole Avenue. The clinic, which is staffed entirely by women physicians, will operate under an advisory committee comprising Drs. James P. Simonds, chairman, Bowman C. Crowell, Frederick H. Falls, Augusta Webster and John A. Wolfer. Dr. Webster is also chairman of the clinic staff. The hospital supplies the space and equipment, and the Women's Field Army of the American Society for the Control of Cancer furnishes a volunteer graduate nurse, a nurse's aide, medical social workers and clerical assistance, pays the hospital for certain services and makes the appointments for the examinations. Patients who are able to pay are charged a $5 fee that covers laboratory and fluoroscopic charges only. Free examinations are given to those who cannot afford to pay. Reports of diagnoses are sent to the patients' physicians. The Illinois Federation of Women's Clubs has given $1,000 to the Women's Field Army as a contribution toward the clinic. Inquiries and applications for appointments at the clinic should be directed to the Women's Field Army, 48 West Division Street.

INDIANA

Tropical Medicine Program Initiated at Indiana University.—The appointment of William H. Headlee, Ph.D., as assistant professor of parasitology in the Indiana University School of Medicine, Indianapolis, marks the introduction of a new program for the study of tropical medicine at the school. The launching of the program follows a recommendation of the Association of American Medical Colleges. In making the announcement Dr. Willis D. Gatch, dean of the medical school, explained that the step had been taken, first, to prepare the future army and navy physicians now being trained in the Army Medical School for service in the tropical regions and, second, as a precaution against the introduction of rare tropical diseases in the United States. Dr. Headlee graduated at Earlham College, Richmond, in 1929. At one time he taught at Purdue University, Lafayette, and served as a Rockefeller Foundation fellow at the Institute of Tropical Medicine, Tulane University of Louisiana, New Orleans, from 1932 to 1934, where he received his Ph.D. in 1935. He also spent a year as biologist and parasitologist in Venezuela, where he drew up the plans for the laboratories of the new Institute of Tropical Medicine at Caracas.

KANSAS

Zoologist to Study Vitamin E.—Earl H. Herrick, Ph.D., professor of zoology and mammalogist of the Agricultural Experiment Station at Kansas State College of Agriculture and Applied Science, Manhattan, has been awarded the Elizabeth Clay Howald Scholarship of the Ohio State University, Columbus. Under the scholarship, which carries a stipend of $3,000 for the year, Dr. Herrick will devote his time to the study of vitamin E in relation to function of the anterior pituitary.

Annual Registration Due Between July 1 and October 1.—Physicians licensed to practice medicine in Kansas are required to renew their licenses annually between July 1 and October 1 and to pay a fee of $1 to the secretary of the board of medical registration and examination. The secretary must strike from the register of licensed physicians the names of all physicians who fail to pay their annual registration fees as required by law. Physicians whose names are so removed may be reinstated by paying the secretary $5 and submitting to him satisfactory proof of moral fitness.

MAINE

Annual Gerrish Library Lecture.—Dr. Charles Sidney Burwell, dean of the Harvard Medical School, Boston, delivered the sixth annual Gerrish Library Lecture at the Central Maine General Hospital, Lewiston, May 14. His subject was "Changing Viewpoints as to Disorders of Circulation."

Medicolegal Meeting.—"How Far Should the State Go in Taking Over from the Counties in Homicide Cases?" was the theme of the annual meeting of the Maine Medico-Legal Society at the Augusta House, June 20. Franz U. Burkett, Portland, former attorney general, opened the discussion.

MICHIGAN

Student Scholarship Established.—The Theodore A. McGraw Memorial Scholarship, to be awarded to the outstanding junior student in the Wayne University College of Medicine, Detroit, has been established as a memorial to the late Dr. McGraw, at one time president of the college when it was known as Detroit College of Medicine and Surgery. The award is the gift of Dr. James D. Bruce, Ann Arbor, and will amount to $100 annually. Dr. McGraw died in 1921.

Health Director Goes to Alaska in Charge of Maternal and Child Health.—Dr. N. Berneta Block, director of the Alger-Schoolcraft health department, has accepted a position as director of the maternal and child health service of the territory of Alaska, newspapers reported, June 3. Prior to her appointment in February as acting director of the health unit, Dr. Block had been regional consultant in maternal and child health in Lansing. In her new position she will direct maternal and child health services throughout Alaskan territory. Her headquarters will be in Juneau.

Upper Peninsula Medical Meeting. — The forty-sixth annual meeting of the Upper Peninsula Medical Society will be held at the Pine Grove Country Club, Iron Mountain, July 14, with the Dickinson-Iron County Medical Society acting as host. Among the speakers will be:

Dr. Alexander M. Campbell, Grand Rapids, The Abortion Problem.
Dr. Eldden J. Teeter, Indianapolis, Anemias.
Dr. Harry R. Foerster, Milwaukee, Occupational Dermatosis.
Dr. Howard H. Cummings, Ann Arbor, Endometriosis.
Dr. John M. Waugh, Rochester, Minn., Vaginal Hysterectomy.
Dr. Herman C. Schumm, Milwaukee, Methods of External Fixation.
Dr. Reed M. Nesbit, Ann Arbor, Diseases of the Prostate Gland.

MONTANA

Personal.—Dr. Walter N. McPhail, Missoula, has been appointed director of the health service at Montana State University for the winter quarter.——Dr. Curtis W. Wilder, Lewistown, has been named health officer of Fergus County to succeed the late Dr. Charles C. Wallin, Lewistown. Dr. Wallin held simultaneously the position of county health officer and Lewistown city health officer and full time school physician. The two latter posts had not been filled at the time of this report.

NEW YORK

Tuberculosis and Diseases of the Chest.—A teaching day on tuberculosis and diseases of the chest will be held at Onondaga Sanatorium, Syracuse, July 9, under the auspices of various county medical societies and other local health groups including the Syracuse University College of Medicine and the department of health, state medical society and state department of health. Speakers will include:

Dr. Reuben J. Erickson, Albany, Pulmonary Tuberculosis: Early Diagnosis and Differential Diagnosis.
Dr. Irl H. Blaisdell, Syracuse, Bronchoscopy as a Diagnostic Aid in Diseases of the Chest.
Dr. Ethan Flagg Butler, Ithaca, Common Thoracic Emergencies.
Drs. J. Maxwell Chamberlain, Oneonta, and Edward Sawtelle Welles, Saranac Lake, Surgical Treatment of Pulmonary Tuberculosis.
Drs. Butler and Albert G. Swift, Syracuse, Surgical Treatment of Nontuberculous Lung Conditions.

New York City

Dr. Sebrell Gives Rothschild Lecture. — William H. Sebrell Jr., surgeon, U. S. P. H. S., Bethesda, Md., delivered the Marcus A. Rothschild Lecture at Beth Israel Hospital, June 15, on "Trend of Recent Research in Vitamins and Clinical Symptoms of Vitamin Deficiency."

Course in Ophthalmology Discontinued. — The New York University College of Medicine, department of ophthalmology, announces that because of the educational program associated with the war effort the nine months graduate course in ophthalmology will be discontinued for the duration of the war.

Health Department Secretary Appointed.—Matthew A. Byrne has been appointed secretary of the city department of health to succeed Dr. Frank A. Calderone, who recently was appointed deputy health commissioner in the department. The appointment was made on the fortieth anniversary of Mr. Byrne's service in the department. In his new position he will supervise the administrative activities of the department and will continue as a member of the personnel board.

OHIO

State Welfare Director Resigns.—Charles L. Sherwood, Fremont, has resigned as state welfare director to become a member of the Ohio Pardon and Parole Division, effective June 15. Assistant director of the department of welfare in 1929 and 1930, Mr. Sherwood formerly was secretary of the Ohio Council of Public Welfare, associate director of the Ohio Institute for Governmental Research and executive secretary of the Ohio Mental Hygiene Association. He has been state welfare director since 1939.

New Method of Handling Sale of Medical Liquor.—On June 1, when the state liquor stores were reopened under the rations of sales to the public, a new method of handling the sale of liquor for medicinal purposes became effective in Ohio. According to the state medical journal it is anticipated that the amount which may be purchased by any holder of a liquor ration book will be sufficient to meet the medicinal needs of many persons for whom liquor will be prescribed by the attending physician. However, in the event that an additional amount is needed for bona fide cases in which the uniform allowance under the rationing program is insufficient, a specified additional amount may be purchased on the presentation of a lawfully issued prescription by a duly licensed Ohio physician and bearing the stamp of approval of the state liquor director. The prescription should be mailed by the physician or patient to the state liquor director. If approved, it will be so marked and returned to the patient. In urging the cooperation of physicians in the new plan, the state medical journal suggests that physicians not only minimize the prescribing of medicinal liquor but likewise minimize the amounts when prescribing is necessary. The regulation states that the amounts prescribed shall be for a period not to exceed one month.

PENNSYLVANIA

Society News.—Dr. Oscar V. Batson, Philadelphia, discussed "Maxillofacial Emergencies" before the Reading Eye, Ear, Nose and Throat Society in Reading recently. —— Dr. Thomas A. Lambie, Harrisburg, formerly personal physician to Haile Selassie, emperor of Ethiopia, discussed "Medical Practice in Ethiopia" before the Northampton County Medical Society, June 18.

Philadelphia

Indictments Charge Theft of Army Medicine.—On May 28 indictments charging participation in private sales of 53,000 sulfadiazine tablets intended for army use in combating tropical fevers and pneumonia were returned by a federal grand jury against a physician, seven druggists and six other persons. According to the New York *World-Telegram* the thefts were said to be discovered by an employee of the manufacturing firm of Sharp & Dohme, Inc., who recognized army markings on a bottle of tablets he saw on a drug store shelf. According to the *World-Telegram* those indicted were Dr. John Leonard Brill, 37, charged with conspiracy and receiving stolen tablets; three Sharp & Dohme employees, Alfonso C. Master, James Jones and James A. Garry, charged with conspiracy and theft of the tablets; Sidney J. Mervee, Joseph Soifer, David R. Vasper, David Masters, Irving Kramer, Meyer Joseph Rosenfeld and Jacob M. Berenbaum, druggists, all charged with conspiracy and receiving stolen tablets, and William Evans, charged with selling; James E. Williams, charged with delivering, and Anthony Frankina, charged with assisting in the deliveries.

WEST VIRGINIA

New Director of Industrial Hygiene.—Dr. Charles S. McKinley, Scotch Plains, N. J., has been appointed director of the bureau of industrial hygiene in the state department of health. His appointment was made on the recommendation of the U. S. Public Health Service. He succeeds Dr. John W. Crosson, who recently resigned to become industrial consultant for Sharp & Dohme, Philadelphia (THE JOURNAL, March 6, p. 776).

Regulations for Control of Cancer and Tuberculosis.—Regulations governing the operation of the new division of cancer control in the state department of health were approved by the Public Health Council at a meeting in Charleston, June 16-17. Standards for the qualifications of the director, assistant director and educational consultant of the new cancer division were set up by the council in consultation with the Merit System Council as required under the provisions of the cancer control bill, passed at the 1943 session of the legislature. The director and assistant director must be qualified to practice medicine in West Virginia. In addition the director must have had at least two years' postgraduate training, one devoted to the treatment and cure of cancer and the other to pathology, or two years' work in the field of cancer. It was also specified that the director must acquire a degree in public health within the period of three years after his appointment. The new division will be tied in with the West Virginia chapter of the Women's Field Army of the American Society for the Control of Cancer. A survey will be started at once to determine what clinics in the state can carry on the work incident to the diagnosis and treatment of cancer. Approval of the clinics will be given on the advice and counsel of the cancer control committee of the West Virginia State Medical Association. Standards now used by the department of public assistance will be used to determine the eligibility of a patient for treatment or care.

An investigation will be made within the next sixty days by the department of public assistance of all persons now in state tuberculosis sanatoriums to ascertain whether they are really needy and entitled to payment for treatment. The population of state tuberculosis institutions is now 901. After July 1 the state will be required to expend $1 a day for each person for the continued treatment of the needy at these institutions. Under

the regulations adopted, the physician who believes that a needy tuberculous patient requires hospitalization should report to the local health officer. The patient will then be investigated by a field visitor of the department of public assistance, a representative of the West Virginia Tuberculosis and Health Association and three citizens of recognized standing in the community. Final approval will be given by an advisory committee consisting of three tuberculosis specialists who are members of the state medical association, together with a lay representative of the West Virginia Tuberculosis and Health Association. Unless it is an emergency case, the hospitalization request will be referred to the department of health for review.

WISCONSIN

Rocky Mountain Spotted Fever.—What appears to be the first proved case of Rocky Mountain spotted fever in Wisconsin is reported in an original article in the state medical journal for June. The patient was being treated in May 1942, but public reporting was purposely delayed until the spring months so that the picture and methods of diagnosis would be vivid at a time when the disease becomes most prevalent, according to the state journal. The article points out that in June 1942 Wisconsin was reported as one of the few states remaining free from spotted fever.

GENERAL

Program on Industrial Eye Hygiene.—Joseph LoPresti, Brooklyn, assistant surgeon, U. S. Public Health Service Reserve, has been assigned to the National Society for the Prevention of Blindness to carry on a program in the field of industrial eye hygiene. A release from the National Society stated that the addition of Dr. LoPresti to the staff will enable the society to develop more thoroughly its activities in the field of industrial eye hygiene. The appointment of Dr. LoPresti will also assist the society in cooperating more extensively with the medical profession and particularly with industrial physicians and industrial hygiene directors. Dr. LoPresti graduated at New York University College of Medicine in 1940.

New Grants in Tropical Medicine.—The American Foundation for Tropical Medicine recently authorized grants to six North American medical schools totaling $26,100. The grants, made possible by contributions and pledges during the current year of $60,100 by nineteen American corporations, are being used to strengthen teaching or research programs in tropical medicine and parasitology at the various schools. The approved projects were selected by the medical committee of the foundation among a number of applications. The medical schools to receive aid were:

New York University College of Medicine, salary aid for full time instructor in tropical medicine and parasitology.

Tufts College Medical School, Boston, to employ clinical teaching fellow in tropical medicine.

Tulane University of Louisiana School of Medicine, New Orleans, budgetary needs of department of tropical medicine, which has trained forty-one physicians from Central and South American countries, from Africa and from Asia since 1940.

University of Manitoba Faculty of Medicine, Winnipeg, traveling fellowship for professor of parasitology and tropical diseases.

University of Nebraska College of Medicine, Omaha, for full time technical assistant to assist teaching in student laboratories and staff research.

Yale University School of Medicine, New Haven, Conn., to supplement salaries of teachers and laboratory assistants in order to expand tropical medicine teaching.

Other applications are pending, it was stated, and those which are approved will be financed out of the contributions. The foundation's program, adopted at the annual meeting of members in January, calls for the collection and disbursement of $100,000 among medical schools and scientific journals and for special projects which fall within the scope of the foundation's activities.

Special Society Elections.—Dr. Frederick A. Coller, Ann Arbor, Mich., was chosen president of the American Surgical Association at a special executive session on May 14. Other officers include Drs. Urban Maes, New Orleans, and Arthur M. Shipley, Baltimore, vice presidents; Warfield M. Firor, Baltimore, secretary, and Leland S. McKittrick, Boston, treasurer.——Dr. Ross Golden, New York, was elected president of the American College of Radiology at its meeting in Chicago on June 6 and Dr. Lyell C. Kinney, San Diego, Calif., vice president. Dr. Hollis E. Potter, Chicago, was reelected treasurer and Mac F. Cahal, Chicago, executive secretary. Dr. Lowell S. Goin, Los Angeles, is chairman of the board of chancellors of the college.——Dr. Calvin A. Walker, San Francisco, was chosen president of the Western Association of Industrial Physicians and Surgeons at its recent annual meeting. Other officers are Dr. Rutherford T. Johnstone, Los Angeles, who was reelected secretary; Dr. James M. McCullough, Crockett, Calif., treasurer, and Elizabeth M. Caffrey, P.H.N., Crockett, who was reelected executive secretary.——Robert D. Potter, New York, science editor of the *American Weekly*, was elected president of the National Association of Science Writers at the annual meeting held in Chicago at the time of the annual session of the House of Delegates of the American Medical Association. He succeeds Watson Davis, Washington, D. C., director of Science Service. Capt. Stephen J. McDonough, M. A. C., of the Office of the Surgeon General of the Army, was reelected secretary-treasurer.

CANADA

Summer School.—The Vancouver Medical Association conducted its summer school in the Vancouver Hotel, Vancouver, B. C., June 22-25. Among the speakers were:

Brig. Jonathan C. Meakins, R. C. A. M. C., Effort Syndrome and Allied Conditions in Civil and Military Practice.

Dr. Edwin M. Robertson, Kingston, Ont., Prolapse of the Pelvic Organs.

Dr. Maxwell M. Canton, Edmonton, Alta., The Clinical Application of Research in Nutrition.

Dr. Foster Kennedy, New York, Allergic Manifestations in the Nervous System.

Lieut. Col. Gordon S. Fahrni, R. C. A. M. C., The Newer Concepts in the Treatment of Wounds.

Lieut. Col. James D. Adamson, R. C. A. M. C., Chronic Nontuberculous Pulmonary Disease in the Army.

Dr. Brien T. King, Seattle, with others, participated in a round table discussion on "Thyroid Disease." Dr. Kennedy also addressed a luncheon on "De Propaganda Fide."

LATIN AMERICA

Costa Rica Venereal Program.—Dr. Jose Amador Guevara has been appointed to head a reorganization program of venereal disease control in Costa Rica, according to the War Letter. Dr. Amador's title is chief general of the antivenereal disease campaign. He received his training under the Rockefeller Foundation.

Otorhinolaryngologic Congress.—The second South American Congress of Otorhinolaryngology will meet at Montevideo in 1944 under the presidency of Dr. Justo M. Alonzo, the exact date to be announced later. Dr. Juan Carlos Oreggia, Calle Yi 1491, Montevideo, Uruguay, is the general secretary of the executive committee.

Deaths in Other Countries

Sir Arthur Newsholme, London, public health authority and author of numerous medical works, died on May 17 at his home in Worthing, Sussex, aged 86. He graduated at London University in 1881. Sir Arthur was a lecturer at Johns Hopkins University, Baltimore, in 1919. In 1928 he was in New York to act in a consulting capacity with the department of health. During his career he served as medical officer of health of Brighton, examiner in public health at Cambridge University, examiner in preventive medicine at Oxford University and examiner in state medicine, University of London. In 1900-1901 he was president of the Society of Medical Officers of Health and was a former principal medical officer of the British Local Government Board.——**Alfred Erich Hoche,** director of the psychoanalytic clinic of the University of Freiburg, died, May 17, aged 77. Dr. Hoche was at one time professor of psychiatry at Freiburg.——**Peter Muehlens,** professor and director of the Hamburg Institute for Tropical Diseases, died in Hamburg recently, aged 69.

Government Services

Food Rationing Problems of Hospitals

Leighton M. Arrowsmith, administrator of the St. John's Hospital in Brooklyn, has been appointed head of the hospital unit in the institutional user branch of the food rationing division, Office of Price Administration. Mr. Arrowsmith will be concerned principally with the food rationing problems of hospitals and similar institutions. He has been administrator of St. John's Hospital for fourteen years and during that time has been president of the Hospital Council of Brooklyn, president of the Greater New York Hospital Association and for the past three years president of the Hospital Bureau of Standards and Supplies. He is also active on the simplification and standardization committee of the American Hospital Association.

Foreign Letters

LONDON

(From Our Regular Correspondent)

May 22, 1943.

Lord Dawson on the Proposed State Medical Service

Lord Dawson, formerly physician to the London Hospital, outlines in the *Times* a plan for the future health service. There is general agreement, he says, that all methods of treatment should be available to every citizen, but the future service should be built on and not destroy existing foundations. Its evolution should be gradual in the light of accrued experience. A prime desideratum is that preventive and curative medicine be brought together and be included in the education and practice of every teaching hospital. To secure areas of sufficient size for hospital services it will usually be necessary to combine several existing major local authorities into a new "health authority" under which the hospitals would work. There would be a key hospital of the area toward which the services would look for leadership and advice. If available, a teaching hospital would fulfil this purpose.

These services will involve considerable changes in the duties both of the local authority and of the medical profession. For local government to be the ultimate administrative authority would conform not only with our constitutional usage but also with the fact that it is already responsible for the health services and its own hospitals. But the medical profession and the voluntary hospitals should not be expected to accept this unless such an administration for complex health and hospital service is guided by representative expert advice. This difficulty could be resolved as follows: 1. The larger outlines of policy should be laid down at the center with the aid of an advisory board representing the parties and including a large proportion of physicians. 2. Following the precedent of education, the health authority should contain a minority of members chosen or nominated. 3. Corresponding to each health authority should exist an advisory body to give skilled guidance on medical and hospital policy. Like the central body it would consist of representatives of local authorities, voluntary hospitals and physicians.

Hospital and consultant services should be remunerated by appropriate salaries. Private practice, though independent, should be coordinated with the fabric of the service. Otherwise there would develop two sets of doctors and a divided profession. Pay beds—with the same treatment as other beds but with added amenities—are consistent with equality of opportunity. Of the whole time state salaried service for all doctors, which is strongly favored by the labor party, Lord Dawson says that it would make a tidy though rigid administrative machine, but man is not a machine, least of all the sick man. It would give doctors fixed hours, but illness has no fixed hours. In this letter to the *Times* Lord Dawson has dealt with what are likely to be the most contentious points between the medical profession and the government.

Transfusion Accidents to Be Investigated

The Blood Transfusion Research Committee of the Medical Research Council has drawn up a memorandum for circulation by the Ministry of Health to hospitals and maternity services. If following transfusion the state of any patient gives rise to anxiety which can reasonably be ascribed to the transfusion, it is requested that the incident be immediately reported by telephone to the nearest blood supply depot in the London area or regional transfusion laboratory in the provinces, so that the necessary investigations may be initiated at the earliest possible moment. At the same time the hospital pathologist should be informed. The conditions which it is particularly desired to investigate are hemolytic reactions due to deterioration or contamination of the blood or blood derivatives used for transfusion. Although the clinical picture is variable, it is suggested that sudden grave collapse, acute severe backache, hemoglobinuria or jaundice should be notified. Investigations would be made much easier if a sample of the blood or blood derivative from the bottle was available. It is therefore requested that a few cubic centimeters should be left in every bottle of transfusion fluid and kept for at least twenty-four hours and not thrown away until the patient has been revisited and it has become clear that he has not reacted unfavorably to the transfusion. As a routine, therefore, every bottle should be recapped and put in a refrigerator. If for any reason immediate contact with transfusion headquarters is impossible, a sample of the blood should be withdrawn from the patient under sterile conditions, with a dry syringe if possible, and divided between two dry sterile tubes and one dry oxalate tube for blood culture and other examinations. At the same time a clean specimen of the urine should be obtained from the patient and kept. In the ordinary course these specimens will be collected by the transfusion officer when he arrives to see the patient.

The Employment of Native Physicians in the West African Medical Service

The British government's plans for the reorganization of the colonial services include the employment of an increasing number of native officers in the West African medical service. At the annual meeting of the League of Colored Peoples, held in Liverpool, a letter from Mr. Oliver Stanley, secretary of state for the colonies, was read in which he asked the league to believe that the Colonial Office had been actuated by a genuine design to abolish racial discrimination in the public service. Looking to the future, we now could and should envisage a situation in which medical services would be mainly staffed by officers of local origin who had obtained their qualifications in West Africa. The present stage was one of transition, and no doubt for some time to come the medical services would include a strong element of European officers. But there was an increasing element of West African officers, and he had every intention that this should expand as rapidly as possible. The Colonial Office was making plans for the reorganization of the colonial services, which it would be premature to disclose but which were designed to eliminate the difficulties to which the league had drawn attention. Thus the British have established in West Africa a medical school for the education of the natives who are now in increasing numbers taking the place of Europeans in the local medical service. That such a development is taking place in one of the most primitive peoples who have come under British rule is a striking testimony to the nature of this rule.

New Research Chair in Ophthalmology

The Royal College of Surgeons has founded a research chair in ophthalmology tenable at the Royal Eye Hospital, Southwark (in London). It is the first chair of the kind in this country, and the hospital has undertaken to raise $200,000 for its permanent endowment. The holder of the chair will devote the whole of his time to clinical research at the hospital and to laboratory work at the Royal College of Surgeons.

The Lowest Maternal Mortality on Record

Though we have the usual wartime increase in venereal diseases and tuberculosis, we have also been able to record some actual improvements in the public health during the war. The latest is that the maternal mortality rate for 1942 is the lowest on record. It was 2.47 per thousand births. This compares with 2.77 for 1941 and is little more than half the rate of 4.41 for 1934. That is a fine tribute to the work of midwives, says

the minister of health. The number of maternity beds available has increased by more than 3,000, but the number does not keep pace with the growing demand under wartime conditions. There is shortage of midwives, which prevents more maternity beds from being opened.

BRAZIL

(From Our Regular Correspondent)

June 1, 1943.

Hepatic Lesions in Infections by Schistosoma Mansoni

Dr. Eudoro Villela of laboratory of the Brazilian Yellow Fever Service made a comparative study of Schistosoma mansoni microscopic lesions observed in 6,000 cases out of 150,000 liver specimens which were collected through the work of viscerotomy between 1930 and 1938. As reported in a previous letter, a medical representative of the Yellow Fever Service takes a small specimen of the liver, with the aid of the viscerotome, whenever a case of death occurs after an illness of the maximum duration of ten days, in the little towns of the hinterland of Brazil. All the liver fragments, measuring an average of 2 by 1 by 1 cm., are immediately fixed in 10 per cent solution of formaldehyde. In the laboratory they are embedded in paraffin, cut to be 4 to 6 microns thick and generally stained by hematoxylin-eosin. For the study of the reticulin and collagen network the silver double impregnation method after Del Rio Ortega has been used in frozen specimens. The author himself recognizes the disadvantages inherent in the microscopic study of small fragments of the liver, but he believes that in spite of this the high number of specimens examined may enable him to draw from such a study valuable information regarding the hepatic pathology of visceral schistosomiasis. So constantly does the liver present lesions in the case of infection by Schistosoma mansoni that Lambert considers the routine microscopic examination of the organ the best way to express the schistosoma infection index of a given locality. Since the early phases of the infection, small forms of Schistosoma are found in the lumen of the intrahepatic portal vein ramifications, and later eggs, toxins and pigments are discharged by the helminths in the blood stream. All these elements can harm the hepatic tissue, causing lesions the nature and intensity of which may vary according to the degree of infection and the time elapsed since its beginning. One of the most important contributions on this subject is that of Koppisch (Puerto Rico, 1937), who described the pathologic changes caused by experimental infection of the rabbit and the albino rat by Schistosoma mansoni. Koppisch ascertained that in the experimental infection the most frequent changes result particularly from the presence in the liver of the helminths, and their toxins and pigments, the eggs taking a minor part in the causation of the lesions. He found out that the embryos die immediately after the laying of the eggs, as the shells found in the liver are almost always empty. According to him this fact explains the rarity of the presence of pseudotubercles in the rabbit and in the albino rat, in contradistinction to what occurs in man, in whose infection the pseudofubercle is the fundamental lesion of visceral schistosomiasis. This is the consequence of the great resistance of the embryos in the interior of the egg, which is attested by the perfect chromophily of its internal structure. It seems therefore that the pathogeny of the liver lesions in the human infection is different, as the schistosomes are seldom found in the intrahepatic ramifications of the portal vein, and in this manner the products probably discharged by the helminths might not have any important role in the causation of the changes.

The lesions found in Dr. Villela's investigation may be separated into three great classes. The first class includes the lesions that may be attributed to the probable toxins secreted by the schistosomes, the most frequent being hyperemia of the hepatic venous sinuses, cloudy swelling, fatty infiltration and necrosis of the centrolobular zone. Acute or subacute liver atrophy has been found in but few cases, and the author is inclined to believe that the lesion was caused by the schistosome infection. Only once did he find, in the liver of a child, lesions appearing to be produced by yellow fever, but the clinical history of the cases revealed that the changes were caused by subacute antimony poisoning (fuadin). The second class of lesions includes the changes produced by the eggs of the helminth. In the human infection the eggs enter the liver through the portal vein, and in the initial phase of the disease they are generally found in the little veins of the portal spaces and in the venous sinuses, but rarely in the centrolobular veins. The most frequent lesions caused by the presence of the eggs are the reactions of foreign body around the empty egg (gigantic cell and monocytic infiltration) and around the egg with living embryo (pseudotubercle) as described since 1931 by Brumpt and Chevalier. Several cases have been found by Dr. Villela presenting a proliferative reaction with the structure of a pseudoabscess round the egg with living embryo. The egg is encircled by a layer of eosinophil and mononuclear cells with epithelioid cells in the periphery, but there is no zone of cellular rarefaction immediately round the egg. The area occupied by the pseudoabscess is larger than the corresponding one in the ordinary reactional process. This type of lesion has been identified by the author as an allergic reaction of the human organism to the material discharged by the embryo. Dr. Villela's interpretation of this type of lesion is based on the findings of K. B. Kerr, who described abnormally intense reactions in the liver and in the lungs of guinea pigs, the resistance of which to the experimental porcine ascaridiosis had been incited by a previous infection by Ascaris suis. Kerr, Coventry and others attribute this cellular reaction to an allergic manifestation, as Mainz and Pons had already described some human cases of urticaria and bronchial asthma associated with the infection by schistosoma. Dr. Villela found also a few cases of a type of lesion never before described in the human infection by Schistosoma mansoni but previously reported by R. Hoeppli in the infection by Schistosoma japonicum: it is a pseudotubercle with stripes, intensely stained by eosin, irradiating from the egg shell. This oxyphilic substance has a strong necrosing power and, according to Hoeppli, is secreted by the lateral glands of the embryo. In some cases pseudotubercles of this type occurred side by side with reaction of the allergic type round eggs with living embryos. Dr. Villela believes that, despite the impossibility to affirm that this state of hypersensibility of the liver tissue may be caused by the oxyphilic matter, the coincidence of the two conditions in the same individuals is worth mentioning. The third class of liver lesions caused by the schistosoma infection includes the fibrous type of reaction, of which there are two kinds. The first kind of schistosomotic liver fibrosis consists in the simple formation of fibrous tissue round the pseudotubercles located in the portal spaces. The second kind is represented in the early stage by the thickening of the reticulinic fibers between two or more pseudotubercles. This process, called by Villela "reticulinic sclerosis," immediately precedes the real fibrotic degeneration. When this process of fibrosis reaches the stage in which two or more portal spaces invaded by the eggs are united, an irregular network of trabeculae is formed, sometimes seen macroscopically under the aspect of the so-called claypipe stem cirrhosis or periportal cirrhosis, as has been described by W. S. C. Symmers. Dr. Villela describes for the first time a type of lesion that he calls "circumscribed cirrhosis," represented by a fibrotic process that irregularly outlines a few lobules or pseudolobules in a determined zone of the liver, but he believes it is not easy to explain why the process of cirrhosis remains circumscribed.

AUSTRALIA

(From Our Regular Correspondent)

May 13, 1943.

The Scheme for a Salaried Medical Practitioner Service

The National Health and Medical Research Council was established in 1937 by the federal government, its function being to promote the health of the people of Australia and to advise, coordinate and direct research into the cause and cure of disease. The council consists of representatives of the commonwealth and state departments of health, Australian universities having medical schools, the Royal Australian College of Surgeons, the Royal Australian College of Physicians, the Federal Council of the British Medical Association in Australia, and one layman and one laywoman appointed by the federal government.

In May 1941 the council appointed a subcommittee to prepare a report on the most effective organization for the preservation of the health of the people of Australia. The preliminary report drawn up by this committee presented an admirably broad and lucid exposition of the question and is well worthy of study in other countries where projects for the reconstruction of medical practice are being considered. In this report it was claimed that a complete and efficiently organized system of hospital and medical health services could be provided at a cost easily within the capacity of the community and that the council was prepared to furnish practical details and to support these with evidence as to revenue and expenditure.

The federal government asked the council to give some indication of the general lines along which such a change could proceed, and accordingly the council presented a report drawn up by its subcommittee giving an "Outline for a Possible Scheme for a Salaried Medical Service." This has been described as "the most important document ever received in dumb silence by the medical profession in Australia." The scheme provides for a complete salaried medical and hospital service for the commonwealth, which would be under the control of the federal government and includes all aspects of preventive and curative medicine. The whole of the populated areas of Australia are divided into health districts, each of which would be controlled by a district health officer appointed by the federal government. The scheme is based on (*a*) the district hospital system (each hospital district coinciding as far as possible with a health center) and (*b*) the group system of medical practice with special provision of specialist services. There is a complete gradation and coordination of medical and hospital services from those suitable for small country areas to the organization required in large cities. The unit of medical practice is the consultation center, which is also the center for preventive and protective medical services. Consultation centers are graded according to population and medical requirements and range from one man medical practitioner centers in small country districts to larger centers in towns provided with hospital facilities. These in turn link up with district divisional centers, which would be the bases for health and administrative as well as for the clinical and specialist services for the district. Maternal and child welfare centers, school medical services and other similar health agencies will have their headquarters at the district centers. Medical specialists are organized into district consultant specialist services, each group of specialists being available to one or more of the divisional centers. In metropolitan areas there will be a base hospital to be kept for serious and specialist cases, and a ring of subsidiary hospitals reinforced by consultation centers staffed by groups of general medical practitioners. These centers will deal with the large mass of general practice now constituting "outpatient" practice at general hospitals. Domiciliary visiting will not be encouraged, but a certain amount will be necessary. The council considers that the whole scheme is not inconsistent with the retention of private practice.

The scheme has been severely criticized by members of the medical profession in that, among other things, it was not drawn up by a body familiar with the actual needs and problems of medical practice. On the other hand, in its report the council has stated that the medical profession should be fully consulted on all points raised in the outline and that this was not intended as a final and complete scheme but as "a basis for discussion of a reconstructed relationship between the government, the people and the medical profession." As such it is being used by the Joint Parliamentary Committee on Social Security, which is at present taking evidence from medical men in the different states on the question of medical and associated practices.

Control of Proprietary Medicines

After having been in operation for several months, the National Security (Proprietary Medicines) Regulations have been disallowed by the federal parliament. Since the introduction of the regulations in October 1942 a great deal of controversy has ensued, and the validity of the order has been questioned. Certain amendments were brought into force in January 1943, but the opposition to the regulations still continued, and on February 16 it was moved in the House of Representatives that the National Security (Proprietary Medicines) Regulations made under the National Security Act 1939-1940 be disallowed. There followed a lengthy debate, which was adjourned before completion and resumed on March 5, when the issue was put to the vote. Mr. Spender, who moved the motion, said that there were only two grounds on which the regulations could be justified: (1) conservation of drugs in short supply and (2) conservation of manpower. The regulations could not be justified from either point of view because the government had already provided itself with adequate powers, by other regulations under the National Security Act, to cope with both these problems. When the regulations were examined, he said, it was clear that they were not designed primarily as a wartime measure to conserve materials and economize the use of manpower but that the real reason for their introduction was related to the matter of public health.

The principal clause in the regulations empowered the minister for health to ban the manufacture and sale of any proprietary medicine which in his opinion did not possess the qualities claimed for it. The supporters of the motion for disallowance of the regulations objected to judicial power being vested in executive officers or their nominees and claimed that such a prohibition, desirable though it might be in the interests of public health, could scarcely be justified on the grounds of wartime necessity or the conservation of manpower and materials. The validity of the regulations depended on whether it could be shown that they had some connection with the war effort. On the question being put, the motion for the disallowance of the regulations was carried by a majority of one.

Marriages

ROBERT CLARK DAY, New Orleans, to DR. JANE MAYSEY MATTHEWS of Montgomery, Ala., at Camp Cooke, Calif., June 8.

CLOYCE FLOWERS BRADLEY, Powell, Tenn., to Miss Mary McPheeters Jarnagin of Jefferson City in May.

ERNEST HAROLD KING to Miss Marge Goodwin, both of Los Angeles, at Santa Monica, Calif., June 12.

SPENCER ALLEN TRUEX JR., Jackson, Tenn., to DR. BARBARA MAE BINKLEY of Nashville recently.

SAMUEL S. ALLEN, Robinson, Ill., to Miss Bernice Quick of Oblong, June 3.

NIELS L. LOW to Miss Mary Margaret Cook, both of Milwaukee, May 29.

Deaths

Arthur Trautwein Henrici, Minneapolis; University of Pittsburgh School of Medicine, 1911; instructor in pathology and bacteriology at the University of Minnesota Medical School from 1913 to 1916, assistant professor of bacteriology from 1916 to 1920, associate professor from 1920 to 1925 and since 1925 professor of bacteriology and immunology; professor of bacteriology and immunology at the University of Minnesota Graduate School; in 1941 Walker-Ames professor of bacteriology at the University of Washington, Seattle; member, past president and vice president of the Society of American Bacteriologists; member of the Society of Experimental Biology and Medicine, Limnological Society of America and the Mycological Society of America; served as a captain in the medical corps of the U. S. Army from 1917 to 1919; author of "Morphologic Variation and the Rate of Growth of Bacteria," 1928; "Molds, Yeasts and Actinomycetes," 1930, and the "Biology of Bacteria," 1934, second edition published in 1939; aged 54; died, April 23, in the University Hospital of coronary thrombosis.

Carl Wesley Apfelbach ✦ Chicago; Rush Medical College, Chicago, 1922; professor of pathology at the University of Illinois College of Medicine; formerly associate and assistant professor of pathology at his alma mater; specialist certified by the American Board of Pathology, Inc.; member of the Central Society for Clinical Research, American Association of Pathologists and Bacteriologists, American Society for Experimental Pathology, American Society of Clinical Pathologists, American Association of Cancer Research and the International Society of Medical Museums; in 1942 appointed medical director of the Presbyterian Hospital, where he had been a member of the staff since 1924; for many years attending pathologist at the Cook County Hospital; aged 49; died, June 25.

John Barnwell Elliott, Birmingham, Ala.; Medical Department of Tulane University of Louisiana, New Orleans, 1894; member of the Louisiana State Medical Society; specialist certified by the American Board of Internal Medicine; an emeritus professor of the theory and practice of medicine and for many years a member of the board of administrators at his alma mater; served as a lieutenant colonel in the medical corps of the U. S. Army in France during World War I; received the honorary degree of doctor of laws from Tulane University in 1937; aged 72; died, April 14, of myocarditis, hypertension, arteriosclerosis and cerebral hemorrhage.

Albert Frederick Spurney ✦ Cleveland; Western Reserve University Medical Department, Cleveland, 1887; formerly associate professor of gynecology and obstetrics at the Cleveland College of Physicians and Surgeons; fellow of the American College of Surgeons; one of the founders of the Cleveland Medical Library; served on the staff of the Cleveland City Hospital; a member of the building committee, active on the surgical staff, and chief of staff of St. Luke's Hospital; superintendent and president of the board of trustees of the Polyclinic Hospital, where he died, April 15, of hypertrophy of the prostate, aged 77.

Jules Victor Haberman, New York; Columbia University College of Physicians and Surgeons, New York, 1905; Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin, Prussia, Germany, 1908; instructor in neurology at Columbia University from 1908 to 1914 and psychotherapy from 1913 to 1918; physician to the U. S. Employees' Compensation Commission from 1920 to 1934; attending urologist and chief, neuropsychopathology clinic, Sydenham Hospital; assistant at the Vanderbilt Clinic from 1908 to 1914 and visiting physician from 1912 to 1918; served during World War I; aged 60; died, April 10, of Parkinson's disease.

William Haymaker Leet, Conneaut, Ohio; Western Reserve University Medical Department, Cleveland, 1895; served during World War I; served as mayor of Conneaut and on the board of education; president of the Citizens' Banking and Savings Company and for thirty-four years president of the Conneaut Creamery Company; on the staff of the Brown Memorial Hospital; a member of the board of trustees of Carnegie Library; a member of the chamber of commerce; aged 72; died, April 22, in Englewood, Fla., of coronary thrombosis.

John L. Adams, Crestview, Fla.; Atlanta (Ga.) Medical College, 1914; served during World War I; aged 56; died in April at the Tuberville Hospital, Century.

Joseph Dioscore Bergeron, Negaunee, Mich.; Laval University Faculty of Medicine, Quebec, Que., Canada, 1904; also a lawyer; aged 66; died, April 14, of heart disease.

William Richard Brown, Cincinnati; Medical College of Ohio, Cincinnati, 1890; aged 74; died, April 21, of angina pectoris.

Oren Manfred Deems ✦ Springfield, Mass.; University of Pennsylvania Department of Medicine, Philadelphia, 1904; served during World War I; on the staff of the Springfield Hospital; aged 63; died, April 11, of cerebral hemorrhage.

John Alexander Dinwoody, Chicago; Trinity Medical College, Toronto, Ont., Canada, 1890; member of the Illinois State Medical Society; medical examiner for merchant marine applicants during World War I; served on the staff of the Jackson Park Hospital; aged 77; died, April 17, of coronary thrombosis.

Louis William Dunavan, San Diego, Calif.; Northwestern University Medical School, Chicago, 1892; aged 76; died, April 18, of duodenal hemorrhage.

Harold Webb Garcelon ✦ Auburn, Maine; McGill University Faculty of Medicine, Montreal, Que., Canada, 1908; fellow of the American College of Surgeons; for ten years president of the school board; served on the staff of St. Mary's General Hospital, Lewiston; aged 59; died, April 17, of coronary thrombosis.

Hyman Glanz ✦ New York; Columbia University College of Physicians and Surgeons, New York, 1904; aged 62; died, April 15, of coronary thrombosis.

Harry Goldman ✦ Boston; Tufts College Medical School, Boston, 1918; assistant professor of preventive medicine at his alma mater; deputy health commissioner of Boston; associated with the city health department for more than twenty years; served on the staff of the Beth Israel Hospital; aged 47; died, April 22, of coronary thrombosis.

Henry Philip Graul ✦ St. Louis; St. Louis University School of Medicine, 1905; on the staffs of the Lutheran and St. Anthony's hospitals; aged 62; died, April 16, of heart disease.

Walter P. Grimes ✦ Kansas City, Mo.; University Medical College of Kansas City, Mo., 1901; an Affiliate Fellow of the American Medical Association; on the staff of the Menorah Hospital; aged 70; died, April 9, of acute coronary occlusion.

Robley Hackett, Churchville, Md.; University of Pennsylvania Department of Medicine, Philadelphia, 1892; aged 73; died, April 11, of cerebral hemorrhage.

Meade Eugene Edgar Hagerty, Ferguson, Mo.; Baltimore Medical College, 1908; member of the Missouri State Medical Association; served during World War I; served on the staffs of the Missouri Baptist Hospital and the Evangelical Deaconess Home and Hospital, St. Louis; aged 58; died, April 26, of hypertensive heart disease.

Henry Halpert ✦ Scranton, Pa.; Bellevue Hospital Medical College, New York, 1895; served on the staff of the Mercy Hospital; aged 70; died, April 18, of coronary thrombosis.

Jerome D. Hamilton, Detroit; Detroit Medical College, 1884; aged 80; died, April 21, of chronic myocarditis.

Edward A. Harper, Columbus, Ohio; Columbus Medical College, 1892; aged 78; was found dead in his home, April 2.

William T. Henry, Springfield, Tenn.; University of Tennessee Medical Department, Nashville, 1909; member of the Tennessee State Medical Association; aged 85; died, April 17, in the Robertson County Hospital of coronary heart disease.

Edgar Milne Hewish ✦ Philadelphia; Victoria University Medical Department, Coburg, Ont., Canada, 1883; L.R.C.P., Edinburgh, Scotland, 1883; served as a medical examiner for the draft board during World War I and until recently as a member of draft board number 74; received a testimonial certificate for more than fifty years' medical service from the Medical Society of the State of Pennsylvania; on the staffs of the Lankenau and Jefferson hospitals; aged 84; died, April 11, of chronic nephritis.

James Orville Hill, Huntington, W. Va.; University of Louisville (Ky.) Medical Department, 1912; member of the West Virginia State Medical Association; aged 61; died, April 26, in the Memorial Hospital of hypertensive heart disease.

Thomas Jameson ✦ Rochester, N. Y.; McGill University Faculty of Medicine, Montreal, Que., Canada, 1892; fellow of the American College of Surgeons; honorary chief surgeon at the Highland Hospital and attending surgeon at St. Mary's Hospital; aged 76; died, April 23, of coronary thrombosis and pernicious anemia.

John J. Janss, Anaheim, Calif.; Jefferson Medical College of Philadelphia, 1884; at one time coroner of Martin County, Minn.; aged 86; died, April 13, of cerebral thrombosis and arteriosclerosis.

Charles Munich Johnson ✠ McVeytown, Pa.; Jefferson Medical College of Philadelphia, 1889; past president of the Mifflin County Medical Society; for many years school medical inspector and physician for the Pennsylvania Railroad; a past president of the staff of Lewistown (Pa.) Hospital; in 1939 received a plaque from the Mifflin County Medical Society for completing fifty years of practice; aged 78; died, April 8, of sarcoma of the upper lip.

Herbert A. Johnson, Palatka, Fla.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1902; member of the Florida Medical Association; veteran of the Spanish-American War; aged 63; died, April 23, in the Veterans Administration Facility, Lake City, of heart disease.

Josiah Leake, Portsmouth, Va.; University College of Medicine, Richmond, 1908; district health officer of Norfolk and Princess Anne counties; aged 62; died, April 17, of cerebral hemorrhage.

Alonzo Chalmers Leslie, Snyder, Texas (licensed in Texas under the Act of 1907); aged 82; died, April 1, of heart disease.

Gaylard M. Leslie ✠ Fort Wayne, Ind.; Fort Wayne College of Medicine, 1898; for many years president of the Bass Foundry and Machine Company; aged 65; died, April 6, of coronary occlusion.

Edward Augustus Lodge, Milford, Mich.; University of Michigan Homeopathic Medical School, Ann Arbor, 1879; aged 89; died, April 4, in the Pontiac (Mich.) General Hospital of bronchopneumonia.

Henry Christian Lovis, South Orange, N. J.; College of Physicians and Surgeons, New York, 1893; member of the Medical Society of the State of New York; also a pharmacist; aged 72; died, April 3.

William Tappan Lum, Alameda, Calif.; Syracuse University College of Medicine, 1895; served on the city board of health and the board of education; colonel in the medical reserve corps of the U. S. Army not on active duty; served during World War I; aged 73; died, April 7, in the Alameda Hospital of bronchopneumonia and myocarditis.

Henry Martin McGehee, Talbotton, Ga.; Emory University School of Medicine, Atlanta, 1916; aged 50; died, April 10, in a hospital at Atlanta.

Harry Oren Maldiner ✠ North Tonawanda, N. Y.; University of Buffalo School of Medicine, 1914; member of the Radiological Society of Notrh America, Inc.; on the staff of the De Graff Memorial Hospital; aged 55; died in April of coronary disease.

Charles Markwell, Versailles, Ky.; Hospital College of Medicine, Louisville, 1892; aged 75; died, April 8, in the Eastern State Hospital, Lexington, of perforated gastric ulcer.

John Masselink, Zeeland, Mich.; Detroit College of Medicine, 1904; aged 65; died, April 2, in the Holland (Mich.) City Hospital of cerebral hemorrhage.

David Henry Mendelsohn ✠ Paterson, N. J.; Jefferson Medical College of Philadelphia, 1910; fellow of the American College of Surgeons; attending surgeon, Nathan and Miriam Barnert Memorial Hospital; aged 55; died, April 7, in Miami Beach, Fla., of heart disease.

John O'Brien Jr., Hampton, Va.; Medical College of Virginia, Richmond, 1901; served in France and with the 76th division of the American Expeditionary Forces during World War I; aged 66; died, April 2, in the Veterans Administration Facility, Kecoughton, of coronary arteriosclerosis.

Frank William Pilliod, Toledo, Ohio; St. Louis University School of Medicine, 1915; member of the Ohio State Medical Association; served overseas as a captain in the medical corps of the U. S. Army during World War I; for twenty years physician to the Ursuline Convent; aged 52; on the staff of St. Vincent's Hospital, where he died, April 11, of endocarditis.

George Joseph Pomainville ✠ Nekoosa, Wis.; Wisconsin College of Physicians and Surgeons, Milwaukee, 1904; past president of the Wood County Medical Society; served as mayor of Nekoosa; health officer of Nekoosa and Port Edwards; on the staff of the Riverview Hospital, Wisconsin Rapids; aged 62; died, April 10, of lymphosarcoma of the jejunum.

Elmer Tower Prizer ✠ Lancaster, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1896; past president of the Lancaster County Medical Society; chief of the department of gynecology and obstetrics and vice president of the medical staff at St. Joseph's Hospital, where he took an active part in organizing the training school for nurses; a director of the former Peoples Trust Company and later of the Farmers Trust Company; aged 75; died, April 12, in the Hahnemann Hospital, Philadelphia, of carcinoma.

Elwood Isaac Rogers, Ridgefield, Conn.; Atlantic Medical College, Baltimore, 1910; aged 65; was killed, April 1, in an automobile accident.

Donald William Schafer ✠ Fort Wayne, Ind.; University of Cincinnati College of Medicine, 1923; served during World War I; recently an examining physician for the Allen County Selective Service System; on the staff of St. Joseph Hospital; aged 48; died, April 12, of coronary occlusion.

Walter William Schmid ✠ Charleroi, Pa.; University of Pittsburgh School of Medicine, 1916;. served during World War I; member and secretary of the senior surgical staff of the Charleroi-Monessen Hospital; aged 56; died, April 9, of hypertensive heart disease.

Alvin Hiram Sippy, Clayton, Mo.; Missouri Medical College, St. Louis, 1885; aged 79; died, April 13, of arteriosclerosis.

Arthur Howard Smith ✠ Marietta, Ohio; Medical College of Ohio, Cincinnati, 1898; served as a major in the medical corps of the U. S. Army during World War I; for many years physician and surgeon for the Baltimore and Ohio Railroad; on the staff of the Marietta Memorial Hospital; aged 70; died, April 7, of cerebral thrombosis and heart disease.

John Soterios Soteropoulo, Kansas City, Mo.; National University of Athens School of Medicine, Greece, 1904; aged 60; died, April 18, of acute coronary occlusion.

John Madeira Spetnagel, New York; University and Bellevue Hospital Medical College, New York, 1901; aged 68; died, April 8, in St. Luke's Hospital of cirrhosis of the liver.

William Cromwell Stone, Greenville, S. C.; Medical College of the State of South Carolina, Charleston, 1913; served during World War I; aged 59; died, April 5, in the Veterans Administration Facility, Atlanta, Ga., of bronchopneumonia, diabetes mellitus and paraplegia of the lower extremities.

Frank Wesley Sweetland ✠ Angola, N. Y.; University of Buffalo School of Medicine, 1878; for many years mayor, member and president of the board of education of Angola; aged 87; died, April 13, of acute uremia, chronic nephritis and arteriosclerosis.

Jesse Adolphus Work, Blue Creek, W. Va. (licensed in West Virginia in 1898); aged 73; died, April 8.

DIED WHILE IN MILITARY SERVICE

James Philip Citta, Toms River, N. J.; Jefferson Medical College of Philadelphia, 1937; diplomate of the National Board of Medical Examiners; member of the staff of the Royal Pines Hospital, Pinewald; major in the medical reserve corps of the U. S. Army; flight surgeon stationed at Shawfield, S. C.; was killed in an airplane accident near Roanoke, Va., May 15, aged 31.

Henry Hill Connolly, Brookline, Mass.; Tufts College Medical School, Boston, 1941; lieutenant, junior grade, medical corps of the U. S. Naval Reserve; aged 27; died, January 5, in the U. S. Naval Hospital, Chelsea, of meningococcic meningitis.

Jacob J. Horwitz ✠ Milwaukee; Rush Medical College, Chicago, 1919; specialist certified by the American Board of Obstetrics and Gynecology, Inc.; formerly clinical instructor in obstetrics and gynecology at the Marquette University School of Medicine; attending gynecologist and obstetrician to the Mount Sinai Hospital; major, medical corps, Army of the United States; aged 49; died, April 24, at Hot Springs National Park, Ark., of exsanguination following incision of the wrists, self inflicted.

Abe A. Hyman, Chicago; Loyola University School of Medicine, Chicago, 1938; member of the Illinois State Medical Society; first lieutenant in the medical corps of the Army of the United States; aged 33; was killed, May 17, when a truck in which he was riding overturned near Dermott, Ark.

Stuart Terry, Pontiac, Mich.; University of Michigan Medical School, Ann Arbor, 1933; member of the Michigan State Medical Society; lieutenant in the medical corps of the U. S. Naval Reserve; aged 35; was accidentally drowned in New Zealand, Dec. 20, 1942.

Bureau of Investigation

STIPULATIONS

Agreements Between Federal Trade Commission and Promoters of Various Products

The following items are abstracts of stipulations in which promoters of "patent medicines," medical devices and cosmetics have cooperated with the Federal Trade Commission to the extent of agreeing to discontinue certain misrepresentations in their advertising. These stipulations differ from the "Cease and Desist Orders" of the Commission in that such orders definitely direct the discontinuance of misrepresentations. The abstracts that follow are presented primarly to illustrate the effects of the provisions of the Wheeler-Lea Amendment to the Federal Trade Commission Act on the promotion of such products.

Armi Mineral Water.—This was reported by the Federal Trade Commission to consist of city tap water supplemented by certain minerals in small quantities and by a relatively larger amount of sodium sulfate, through which mixture has been conducted a current of electricity. In October 1942, one Ralph R. Markwood, trading as Armi Mineral Water Company, Toledo, Ohio, signed a stipulation with the Federal Trade Commission agreeing to discontinue the following misrepresentations for his product: that the treatment of the water by electrolysis imparts therapeutic value to it; that the water is effective in replenishing an impoverished blood stream, overcoming congestion in the intestinal tract, preventing or correcting the accumulation of toxins in the system, or invigorating every organ and cell of the body; that the preparation when taken as directed will constitute a competent treatment or dependable relief for a long list of ailments including anemia, appendicitis, arthritis, asthma, common colds, diabetes, gallstones and heart, liver and kidney disorders; or that it has any effect on constipation other than by affording temporary relief such as any saline laxative would produce. Markwood further agreed to discontinue use of such statements as "scientifically balanced artificial mineral water" to imply that the mineral content of the water is of such kind, quantity and proportion as to supply the bodily requirements of minerals in adequate and correct proportion when the preparation is taken as directed.

Bathritis.—In October 1942 one James P. Galligan, trading as Bathritis Company, Chicago, stipulated with the Federal Trade Commission that he would discontinue the following misrepresentations in his advertising of his product: that when used as directed in the bath it would have any therapeutic effect in the treatment of rheumatism, neuralgia or other ailments, or when applied as a liniment would be effective in excess of relieving pain; that it relieves sprains, stiffness and swelling or works toward restoring normal active muscular health; that it is effective in comforting inflamed tissues and dispelling body odors or is a new discovery.

Delano's.—In October 1942 F. H. Delano and the Delano Company, Inc., of Syracuse, N. Y., signed a stipulation with the Federal Trade Commission in which they agreed to cease representing their product as a remedy or cure for rheumatism and as a tonic or alterative. Further, they agreed to discontinue any advertising which represented that their preparation or any other of substantially the same composition, whether sold under the name "Delano's" or any other trade style, is safe and harmless, or any advertisement which failed to reveal that the product should not be used when abdominal pains, nausea, vomiting or other symptoms of appendicitis are present; that its regular or continued use might result in dependence on laxatives or that the administration of the mixture regularly or over a considerable period of time unsupervised by a physician may result in injury to the user. It was provided, however, that such advertisements need contain only the statement "Caution: Use only as directed," when the label itself contains sufficient warning.

Dulse-Dene, Vita-Broth, Garlo-Min, Vege-Molen, Vita-Lax and M-7.—These were the subjects of a stipulation which one Andre Tempe, trading as Master Vita-Min Laboratories, Chicago, signed with the Federal Trade Commission in October 1942. In this he agreed to discontinue the following misrepresentations in the advertising: that only organic compounds of iodine preparations are nutritionally effective; that the administration of iodine preparations will increase immunity to disease or that the use of such a product in combination with vitamin A will improve vitality; or that his product, "Dulse-Dene," is an adequate treatment for nervousness or arthritis or produces vitality in general or remarkable results in school children; that the American dietary is deficient in minerals, that it is impossible to obtain adequate nourishment from the customary articles of diet or that it is impossible to obtain sufficient minerals from various vegetables unless they have been subjected to a special treatment such as is used in preparing the vegetables contained in Tempe's product, "Vita-Broth"; that "Garlo-Min," because of its dried garlic or other content, has any therapeutic effect in treatment of high blood pressure, or prevents disease and promotes good health, or that the use of garlic promotes longevity, detoxifies the colon, soothes the nervous system, or has a favorable influence on arteriosclerosis or high blood pressure; that either okra or the respondent's product, "Vege-Molen," is an effective treatment for stomach ulcers, duodenal ulcers, colitis, chronic constipation, hemorrhoids or acid stomach, or that cancer generally results from colon irritation; that "Vita-Lax" prevents hyperacidity, toxemia or intestinal putrefaction or is free from drugs and is not habit forming; that vitamin A can be depended on as "anti-infective" to promote healthy skin and normal eyesight and build resistance against colds and infections; that vitamin B overcomes nervousness and irritability; that vitamin C maintains health of teeth and gums; that vitamin E promotes muscular normalcy and vigor to help prevent anemia; that vitamin G is a natural promoter of clear skin; or that the respondent's product "M-7," by reason of its vitamin or other content, constitutes a competent treatment for such diseases, symptoms or conditions. The concern further agreed to discontinue the use of the term "vitamin F" to describe the content of any of its preparations, or otherwise to designate any ingredient by a purported scientific name or term not recognized by the prevailing weight of authorities in such field of science.

Products of Allied Pharmacal Company, Inc., Cleveland.—This concern also operated as Erie Laboratories, Inc., Avon Pharmacal Company, Victor Drug Products, Mason Pharmacal Company, Mack Pharmacal Company, Dale Drug Products and Murray's. In October 1942 the Federal Trade Commission accepted from the concern in question a stipulation agreeing to discontinue using, or supplying to others for their use, advertising matter making the following misrepresentations for their products: "Lee's O. B. Tablets" (also sold under the name "Lee's Obesity Tablets") permanently reduces weight and increases vitality; "Quits" (also sold as "Chexs," "Halts" and "Breaks") overcomes the liquor habit and is tasteless and harmless; "Murray's Procon Tablets" (also known as "Dale's Urotone Tablets," "R.L.D Procon Tablets," "Hite's Inco-Tablets" and "Mack's Inco-Tablets") removes excess acid, neutralizes waste matter and has value in treating prostatic troubles or conditions secondary to, or associated with prostatic or urinary disorders; "Elco-Hepo (Hepatic) Tablets" (also sold under the names "Murray's Hepo Tablets" and "Hite's Okay Hepo Tablets") corrects habitual constipation, jaundice or gallstones or overcomes the cause of constipation, headaches, dizziness, marred complexion or poor eyesight; "Hay Fever and Asthma Preparation" is a remedy or cure for hay fever, asthma, sinus or summer colds or affords anything but temporary relief from symptoms of such disorders; "L. H. C. Lee's Herbal Compound" restores strength or vigor to persons suffering from nervousness or rundown condition because of overwork, excessive eating or too strenuous living; "Elco Iocin Tablets" (also sold as "Dale's Salicol Tablets," "Grabill's Tablets" and "Hart's Tablets") is a competent treatment or cure for rheumatism, arthritis, lumbago, neuralgia or swollen joints or affords more than temporary or partial relief from muscular pains and aches caused by such disorders; "Furmas" (also known as "Mack's Mozel") corrects stomach disorders generally and gives relief from distress resulting from loss of appetite, sleeplessness and dizziness when not due to constipation; "Elco Exora Salve and Liquid" (known also as "Murray's Exora" and "Mack's E. Z.") is a remedy or cure for skin diseases or will clear up disfiguring skin conditions. The respondent corporation further stipulated that it would discontinue any advertisements of Quits, Elco Iocin Tablets, Furmas or Hay Fever and Asthma Preparation or any other products of substantially the same ingredients or properties as these, the use of which is potentially dangerous to health and the advertising of which fails to reveal such potential danger. It was provided, however, that if the directions for use of these preparations, whether on the label or in the labeling, contain an adequate warning of the potential danger to health, such advertising need carry only the statement "Caution: Use only as directed."

Taylor's Kolnox Compound.—Roy E. Phipps, trading as Taylor Drug Company and Taylor Drug and Seed Company, Bessemer, Ala., stipulated with the Federal Trade Commission in October 1942 that he would discontinue the following misrepresentations for his product: that it will help the system maintain proper aikaline balance; that it is a cold remedy and will prevent, fight, control or rid one of colds; that it will clear the system of poisons, relieve bad coughs, or have any value with respect thereto, beyond its ability to exert a slight cooling effect on the throat or that it will relieve or ease congestion. Phipps further agreed to cease representing that his product is safe to use in all cases and to discontinue any advertisements which failed to reveal that the preparation should not be used when symptoms of appendicitis are present. He was permitted, however, to limit this warning in the advertising to the brief statement "Caution: Use only as directed," provided the directions, wherever they might appear, contain adequate warning to the same effect.

Vi-Co Compound.—The promoters of this, Irving Z. Harris and Pauline B. Harris, trading as Veltex Company and Vi-Co Sales Company, North Birmingham, Ala., signed a stipulation with the Federal Trade Commission in August 1942 in which they agreed to discontinue the following misrepresentations: that this product is a vegetable and mineral compound; that it will afford relief from indigestion and sour stomach, and that in future advertising they will cease using the word "tonic" either alone or with other words to describe the preparation.

ViVi-Ta Superior Wheat Germ.—This is put out by Claire L. and Emil J. Specht, doing business as Vegetable Juice and Products Company and Vegetable Products Company, Rochester, N. Y. For a time their advertising represented that this product would provide users with vitamin A and the minerals calcium, iron, copper, magnesium and manganese; that it could be relied on to prevent colitis, sterility, eye cataracts or gray hair or successfully treat catarrh, arthritis, neuritis, eczema and anemia, stimulate the liver and pancreas, strengthen the heart muscles, retard old age, normalize calcium metabolism, improve the condition of the sinus membranes or of the hair, nails or scalp; increase nervous energy, vigor, mental powers, nerve and muscle tone; provide an effective aid during the menopause, exert a specific nourishing effect on the nerves and brain, favorably affect cases of constipation and lack of energy and revitalize tissues and glands. These claims are to be discontinued, according to a stipulation which the Specht signed with the Federal Trade Commission in October 1942 in which they agreed that the claims should not be repeated except when and to the extent that the disorders named may be due to a deficiency of the vitamins which the product furnishes.

Correspondence

MEDICAL EDUCATION AT THE FRONT

To the Editor:—About six weeks ago I requested a subscription be sent to me of THE JOURNAL. Communications are, of course, a bit uncertain across the sea lanes these days, and so I thought I would send a V mail inquiry as to whether you received my request.

Incidentally, I might say that the reason I've asked for the subscription is so I could keep the copies longer. For in this particular section of the service—under bomber command—the various medical officers in this wing are sent at periodic intervals copies not only of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION but also of the British journals—like the *Lancet* and the *British Medical Journal*. Lieut. Col. A. L. Streeter, the wing surgeon, has been quite attentive to details of this sort and has constantly sought to keep up the medical interest of his staff.

Medical officers in this wing are always encouraged to attend the weekly medical meetings held at Second Evacuation Hospital—staffed by the St. Lukes (New York) unit. At the last meeting, held May 21, the chief of the surgical service there, Lieut. Col. MacFee, introduced Col. Rex L. Dively, who presented a kodachrome film on amputations. Colonel Dively also introduced Dr. Freyberg from Sweden, who was visiting England the previous three weeks at the request of the Swedish ministry of health. Professor Freyberg, a very mild mannered, soft spoken, blue eyed Nordic, spoke of the present situation in "neutral" Sweden and talked at some length on the status of medicine in that country. According to the professor, the surgeon in Sweden must work for the government, gets a salary rarely exceeding $2,000, does not become a chief of surgery in a hospital until he is over 40 and has but little opportunity for outside practice. Other interesting personalities in the field of medicine that have spoken at the weekly medical meetings at the Second Evacuation Hospital in the past few months are Col. William S. Middleton from the University of Wisconsin Medical School, Lieut. Col. Theodore L. Badger, chest specialist from Boston, and the neurosurgeon Capt. Arthur Ecker, who spoke on the topic of low back pain.

The medical side of this war is doing well.

ASHER N. LEBENSOHN, Captain, M. C., A. U. S.,
A. P. O. 634 (%) P. M.,
New York.

"SMALLPOX VACCINATION REACTIONS"

To the Editor:—I have read with great interest the communication on the subject "Smallpox Vaccination Reactions" (THE JOURNAL, June 5, p. 395). The loss of immunity to smallpox takes place gradually and is subject to considerable individual variation. In my experience, beginning vaccinoid reactions occasionally showed as early as the second day.

For the past two years I have promoted smallpox revaccination by emphasizing the fact that it should be regarded in the same light as the Schick test for susceptibility to diphtheria, which has the added advantage of not requiring any further procedure to remedy the lack of protection, if immunity to smallpox is not present. I heartily second the proposal to attach Jenner's name to the immune reaction. However, I should like to suggest that the appellation "Jenner test" would be more appropriate in stressing its value as a routine public health measure as well as its importance in determining the immunity of contacts to a case of smallpox.

SIDNEY FRANKLIN, M.D., Newberry, Mich.
Director, District Department of Health No. 6.

USE OF SULFATHIAZOLE LOCALLY IN OTOLARYNGOLOGY

To the Editor:—The editorial comment regarding the use of sulfathiazole locally in the nose, pharynx, and larynx (THE JOURNAL, May 15, p. 180) prompts me to suggest that a word of caution is in order. In the course of certain experiments that we were carrying out it became desirable to test the capillary network of the lung as an absorptive surface for drug administration. This was done first by using atomized mists from suspensions of various sulfonamides, with resulting high blood levels of the drug (Harris, T. N.; Sommer, Harriet E., and Chapple, C. C.: *Am. J. M. Sc.* **205**:1 [Jan.] 1943).

Certain disadvantages of the mists prompted the trial of dry sulfonamide powders as smokes from specially designed, though very simple, blowers. This work is being reported in the *American Journal of the Medical Sciences* in detail, but one of the results should be mentioned here, namely that three deep breaths in the adult taken while the smoke is being blown through the nose and/or mouth produce a sulfonamide blood level of 3 to 5 mg. per hundred cubic centimeters of blood in less than fifteen minutes, as measured at the finger tip. This level rises for some hours to approximately double the original figures and at the end of two days is usually still above 1 mg. per hundred cubic centimeters. As the smoke contains very much less drug than the quantities mentioned in the editorial comment, it would seem that some cognizance should be taken of this fact.

CHARLES C. CHAPPLE, M.D.,
Philadelphia.

TRAUMATIC WINGED SCAPULA

To the Editor:—In the February 27 issue of THE JOURNAL appears a clinical note entitled "Two Additional Cases of Traumatic Winged Scapula Occurring in the Armed Forces," by Majors Charles U. Hauser and William F. Martin of the Medical Corps, Army of the United States. Two reasons prompt this immediate note for publication in THE JOURNAL:

1. The authors are inconsistent in their method of avoiding stretching of the paralyzed serratus magnus muscle and of its protagonists and in the prevention of contractures in their antagonists, for in their first case they employ a most improper and inefficient mechanical measure, the sling, while in their second case they utilize the accurate principle of upward pressure beneath the flexed elbow with the arm adducted to the side.

2. The authors, in discussing their use of the second method, make the noncommittal statement "We make no claims for originality in presenting the detailed pictures of a simple and expedient immobilization cast." If the authors had reviewed the literature they would have found this method described for the first time by Tocantins and myself in the *Journal of Bone and Joint Surgery* in 1938. The efficient apparatus that we employed consisted of a pelvic celluloid base with an adjustable celluloid cup to force the elbow on the affected side upward.

THOMAS HORWITZ, Major, M. C.,
A. P. O. 678, Unit 1, care of Postmaster,
New York.

EFFECT OF p_H ON ACRIDINE COMPOUNDS

To the Editor:—In the May 8 issue of THE JOURNAL, page 117, I note in the editorial describing the acridine compounds the statement "As early as 1913 Browning and Gilmour demonstrated that the action of the diaminoacridine compounds, in contrast to all other efficient antiseptics, is intensified rather than reduced when the medium contains serum." More recent work has shown that it is not the serum which influences this intensification but the change of the p_H of the medium.

THOMAS BEATH, M.D., Kingston, Ont.

Council on Medical Education and Hospitals

CONTINUATION COURSES FOR PRACTICING PHYSICIANS

In accordance with the plan of the Council on Medical Education and Hospitals, advance information concerning continuation courses for practicing physicians available in the various centers is published quarterly. The following list consists of courses beginning during the period July 1, 1943-Sept. 30, 1943. It is hoped that this material will be useful to physicians seeking opportunities for postgraduate work. Physicians called on to assume new responsibilities because of the war and physicians who are returning to practice may find here listed courses which will be of help to them. Since many of the classes are necessarily limited, those who contemplate enrolling in any of these courses are urged to communicate as early as possible with the proper executive officer.

VICTOR JOHNSON, M.D.
Secretary, Council on Medical Education and Hospitals.

Continuation Courses for Practicing Physicians—July 1, 1943–Sept. 30, 1943

Institution	Schedule of Course	Title of Course	Number of Students Accepted	Registration Fee and/or Tuition
ALLERGY—See also Dermatology & Syphilology				
Harvard Medical School, 25 Shattuck Street, Boston, Mass. Write to: Dr. Frank R. Ober, Assistant Dean, Courses for Graduates	July.[20] 2 weeks, part time	Clinical Allergy	6 [4]	$50
University of Pennsylvania Graduate School of Medicine, 237 Medical Laboratories, Philadelphia, Pa. Write to: Dr. R. C. Buerki, Dean, The Medico-Chirurgical College	Arranged. 4 weeks, about 40 hours	Allergy	Individuals [9]	$150
Drs. Vaughn and Graham, 201 West Franklin Street, Richmond, Virginia. Write to: Dr. Warren T. Vaughn	1 year course. Every 6 months	Training in Allergy	Limited	.....
ANATOMY—See also Otolaryngology; Surgery				
Harvard Medical School, 25 Shattuck Street, Boston, Mass. Write to: Dr. Frank R. Ober, Assistant Dean. Courses for Graduates	July, Aug.[20] 6 weeks	Microscopic Anatomy	Limited [11]	$60 [18]
New York Medical College, Flower and Fifth Avenue Hospitals, 5th Avenue at 105th Street, New York City. Write to: Dr. J. A. W. Hetrick, Dean	Arranged. 160 hours	Applied Anatomy of Pelvis and Abdomen	....	$225
ANESTHESIOLOGY				
Columbia University, Faculty of Medicine, at the New York Postgraduate Medical School, 305 East 20th Street, New York City. Write to: Director of the School	Continuously. 2 weeks	Anesthesia	1 [2]	$100; $50 for 3d week [16]
	Arranged. 12 sessions	Regional Anesthesia	2-4 [2]	$75 [16]
Harvard Medical School, 25 Shattuck Street, Boston, Mass. Write to: Dr. Frank R. Ober, Assistant Dean, Courses for Graduates	Monthly. Days and hours arranged	Clinical Anesthesia	3	$30
New York Medical College, Flower and Fifth Avenue Hospitals, 5th Avenue at 105th Street, New York City. Write to: Dr. J. A. W. Hetrick, Dean	Sept. 27. 1 yr. basic sciences, 2 yrs. approved residency, thesis examinations—leads to degree	Anesthesiology	....	$610 1st yr. $50 2d & 3d yr.
New York University College of Medicine, 477 First Avenue, New York City. Write to: Dr. John H. Mulholland, Assistant Dean	Arranged. Part time for 3 weeks	Inhalation Anesthesia	5	$150
BACTERIOLOGY—See Ophthalmology; Otolaryngology; Pathology; Public Health				
BIOCHEMISTRY				
Harvard Medical School, 25 Shattuck Street, Boston, Mass. Write to: Dr. Frank R. Ober, Assistant Dean, Courses for Graduates	Arranged	Research in Biological Chemistry	....	Arranged [13]
BRONCHOSCOPY—See Otolaryngology				
CANCER				
Tufts College Medical School, 30 Bennet Street, Boston, Mass. Write to Dr. Samuel Proger, Chairman, Postgraduate Division	On request	Cancer	Minimum: 4	Arranged [13]
United States Public Health Service: National Cancer Institute at approved institutions. Write to: Surgeon General, Washington, D. C.	Arranged. Full time	Diagnosis and Treatment	Individuals	Varies [17,18]
CARDIOLOGY				
New York Medical College, Flower and Fifth Avenue Hospitals, 5th Avenue at 105th Street, New York City. Write to: Dr. J. A. W. Hetrick, Dean	Arranged. 30 hours	Cardiology	....	$100
New York State Department of Health, Cardiac Service. Write to: New York State Reconstruction Home, West Haverstraw, N. Y.	Arranged. 3 months	Rheumatic Cardiac Disease	Limited [1]	None [18]
University of Pennsylvania Graduate School of Medicine, 237 Medical Laboratories, Philadelphia, Pa. Write to: Dr. R. C. Buerki, Dean, The Medico-Chirurgical College	Weekly. 5 days, about 30 hours	Electrocardiology and Cardiac Roentgenology	Individuals [3]	$60
CYSTOSCOPY—See Obstetrics & Gynecology; Urology				
DERMATOLOGY & SYPHILOLOGY—See also Obstetrics & Gynecology; Public Health; Venereal Disease Control				
Columbia University, Faculty of Medicine, at the New York Postgraduate Medical School, 305 East 20th Street, New York City. Write to: Director of the School	Throughout the year (4 sections) 6 weeks, 3 months	Clinical Dermatology and Syphilology	20	$40, $75 [16], 1 section $60, $100, 2 sections $80, $125, 3 sections $100, $150, 4 sections
	Arranged.[1] 6 weeks, 3 months	Diagnosis and Treatment of Syphilis	6	$25; $40 [18]
	Arranged. 6 weeks, 3 months	Practical Instruction in Dermatological Allergy and Immunology	3 [2]	$40; $75 [18]
	Arranged. 6 weeks, 3 months	Practical Instruction in Mycology and Animal Parasitology as Related to Diseases of the Skin	3	$40; $75 [18]
	Arranged.[1] 6 weeks, 3 months	Practical Instruction in Minor Dermatological Surgery	2 [2]	$40; $75 [18]
	Arranged.[1] 6 weeks, 3 months	Practical Instruction in Physical Therapy as Applied to Diseases of the Skin	3	$40; $75 [18]
	Arranged.[1] 6 weeks, 3 months	Practical Instruction in the Diagnosis and Management of Syphilis	3	$40; $75
	Arranged. 3 months, 6 months or 1 year	Practical Instruction in the Pathological Histology of Diseases of the Skin	12 [2]	$75; $125; $175 [16]

References will be found on p. 701

Continuation Courses for Practicing Physicians—July 1, 1943–Sept. 30, 1943—Continued

Institution	Schedule of Course	Title of Course	Number of Students Accepted	Registration Fee and/or Tuition
DERMATOLOGY & SYPHILOLOGY—Continued				
Harvard Medical School, 25 Shattuck Street, Boston, Mass. Write to: Dr. Frank R. Ober, Assistant Dean, Courses for Graduates	Arranged. 2 months, part time	Clinical Mycology	6	$50
	Arranged. Full time	Dermatology, Skin Ward Work.	Limited [3]	Arranged
	Monthly. 1 month, part time	Dermatology	....	$40
	July. 1 year, full time	Dermatology and Syphilology.	Limited [3,11]	$300
New York Polyclinic Medical School and Hospital, 345 West 50th Street, New York City. Write to: Dr. F. H. Dillingham, Executive Officer	First of any month, 6 weeks, 3 months, part time	Dermatology and Syphilology..	....	$50; $75
DIETETICS				
Tufts College Medical School, 30 Bennet Street, Boston, Mass. Write to: Dr. Samuel Proger, Chairman, Postgraduate Division	On request	Dietetics	Minimum: 4	Arranged [12]
ELECTROCARDIOGRAPHY—See also Cardiology				
Columbia University, Faculty of Medicine, at the New York Postgraduate Medical School, 305 East 20th Street, New York City. Write to: Director of the School	Sept. 28,[19,20] 6 days, full time	Electrocardiography	Minimum: 4	$50 [16]
Michael Reese Hospital, 29th Street and Ellis Avenue, Chicago, Ill. Write to Dr. Louis N. Katz, Director of Cardiovascular Research	Aug. 17,[20] 2 weeks full time	Electrocardiography	....	.....
	Aug. 16-28. Full time	Electrocardiographic Interpretation	Limited	$100
New York Medical College, Flower and Fifth Avenue Hospitals, 5th Avenue at 105th Street, New York City. Write to: Dr. J. A. W. Hetrick, Dean	Arranged. 15 hours	Electrocardiography	....	$100
ENDOCRINOLOGY—See Medicine; Obstetrics & Gynecology				
ENDOSCOPY—See Obstetrics & Gynecology; Surgery				
EPIDEMIOLOGY—See Military Medicine; Public Health				
GASTROENTEROLOGY				
Columbia University, Faculty of Medicine, 630 West 168th Street, New York City, at Presbyterian Hospital. Write to: Dean	Arranged. 2 months	Gastroscopy	1 [2]	$200
Hahnemann Medical College and Hospital, 230 North Broad Street, Philadelphia, Pa. Write to: Dr. William A. Pearson, Dean	Monthly. 1 month, full time	Gastroscopy	2	$100
New York Medical College, Flower and Fifth Avenue Hospitals, 5th Avenue at 105th Street, New York City. Write to: Dr. J. A. W. Hetrick, Dean	Arranged. 1 month	Gastroenterology	....	$100
	Arranged. 3 hours	Gastroscopy	....	$100
	Arranged. 5 sessions	Peritonescopy	....	$75
University of Pennsylvania Graduate School of Medicine, 237 Medical Laboratories, Philadelphia, Pa. Write to: Dr. R. C. Buerki, Dean, The Medico-Chirurgical College	Arranged. 16 weeks part time	Clinical Course	Individuals [2]	$400
GASTROSCOPY—See Gastroenterology; Otolaryngology				
GYNECOLOGY—See Obstetrics and Gynecology				
HEMATOLOGY				
Tufts College Medical School, 30 Bennet Street, Boston, Mass. Write to: Dr. Samuel Proger, Chairman, Postgraduate Division	July 5-17	Hematology	Individuals [20]	$75 [14]
INFANTILE PARALYSIS				
University of Minnesota Medical School, Minneapolis, Minn. Write to: Dr. Harold S. Diehl, Dean	Arranged. 6 days, full time	Kenny Treatment of Acute Poliomyelitis	25 [16]	$25
LARYNGOLOGY—See Otolaryngology				
MEDICINE				
Florida Medical Association, Inc. Write to: Dr. T. Z. Cason, Chairman, Medical Postgraduate Course, 2033 Riverside Avenue, Jacksonville, Fla.	Arranged. 2 weeks or more, full time	General Medicine	10	$5
Harvard Medical School, 25 Shattuck Street, Boston, Mass. Write to: Dr. Frank R. Ober, Assistant Dean, Courses for Graduates	Continuously. Part time	Diabetes	....	None
	Aug. 1-4 months, full time	General Course in Internal Medicine	Any number [30]	$150
	Sept. 1, Sept. 15. 1 year, full time	Internal Medicine	4-6 [8,23]	$300 [24]
	July 1-31. Full time	Modern Diagnosis and Treatment of Heart Disease	20 [30]	$150
	Aug.[20] 2 weeks, full time	Selected Subjects in Endocrinology and Metabolism	Minimum: 10	$80
Maine Medical Association, 142 High Street, Portland, Maine. Write to: Dr. Frederick R. Carter, Chairman, Committee on Graduate Education	Arranged. Part time	Home Study Course	Limited [6]	None
Michigan State Medical Society, 2020 Olds Tower, Lansing, Mich. Write to: Mr. William Burns, Executive Secretary	Sept. 22-24, 3 days, full time	Postgraduate Conference on War Medicine	....	$5
New York Medical College, Flower and Fifth Avenue Hospitals, 5th Avenue at 105th Street, New York City. Write to: Dr. J. A. W. Hetrick, Dean	Arranged. 1 month	Clinical Pulmonary Diseases	....	$100
	Arranged. 30 hours	Endocrinology	....	$100
	Sept. 27. 1 year basic sciences, 2 yrs. approved residencies, thesis, examinations—leads to degree	Internal Medicine	....	$610 1st yr. $50 2d and 3d yrs.
	Arranged. 1 month	Medicine	....	$100
	Arranged. 30 hours	Physical Diagnosis and Hematology	....	$100
New York Polyclinic Medical School and Hospital, 345 West 50th Street, New York City. Write to: Dr. F. H. Dillingham, Executive Officer	Arranged. 6 weeks, 3 months, full time	Course for General Practitioners	....	$100, $150 [16]
University of Maryland, School of Medicine, Lombard and Green Streets, Baltimore, Md. Write to: Dr. Robert U. Patterson, Dean	Arranged	Subject Optional	Individuals	Arranged
University of Pennsylvania Graduate School of Medicine, 237 Medical Laboratories, Philadelphia, Pa. Write to: Dr. R. C. Buerki, Dean, The Medico-Chirurgical College	Arranged. 2-4 weeks, 75 hours	Diabetes Mellitus	Individuals [2]	$150
MILITARY MEDICINE				
Harvard Medical School, 25 Shattuck Street, Boston, Mass. Write to: Dr. Frank R. Ober, Assistant Dean, Courses for Graduates	To be announced. 2 weeks, full time	Military Medicine and Surgery	Limited [8]	.....

References will be found on p. 701

Continuation Courses for Practicing Physicians—July 1, 1943–Sept. 30, 1943—Continued

Institution	Schedule of Course	Title of Course	Number of Students Accepted	Registration Fee and/or Tuition
MILITARY MEDICINE—Continued				
Navy Department, Washington, D. C. Write to: Bureau of Medicine and Surgery	6 times yearly. 8 weeks, full time	Aviation Medicine (Aviation Medical Examiner)	Limited [7]	None
	Every 5 months. 5 months, full time	Aviation Medicine (Flight Surgeon)	Limited [7]	None
	6 times yearly. 8 weeks, full time	Basic Instruction	Limited [7]	None
	Twice yearly. 6 months, full time	Deep Diving	4-12 [7]	None
	Twice yearly. 6 months, full time	Epidemiology	8-20 [7]	None
War Department, Washington, D. C. Write to: Training Division, Office of the Surgeon General, United States Army	Monthly. 170 hours	Basic Course for Officers	500 [7]	None
	Monthly. 1 month, full time	Exemplary Course	150 [7]	None
	Arranged. 1 month, 145 hours	Maxillo-Facial and Plastic Surgery	12 [7]	None
	Arranged. 1-3 months	Officer Pool, 14 General Hospitals	700	None
	Undetermined	Officer Pool, Gulf Coast Air Corps Training Center	200 [7]	None
	Undetermined	Officer Pool, Medical Field Service School	150 [7]	None
	Arranged. 1-3 months	Officer Pool, Medical Replacement Training Centers	200 [7]	None
	Undetermined	Officer Pool, Medical Supply Depots and Medical Sections, General Depots	50 [7]	None
	Arranged. 2 weeks, full time	Photoroentgenology	20 [7]	None
	Monthly. 170 hours	Special Course for Division Officers	100 [7]	None
	Continuously	Specialized Surgical Team Training	Limited [7]	None
NEUROLOGY—See Psychiatry and Neurology				
OBSTETRICS & GYNECOLOGY—See also Pathology				
The Chicago Maternity Center, 1336 South Newberry Avenue, Chicago, Ill. Write to: Dr. Beatrice L. Tucker, Medical Director	Sept.[20] 4 months	Practical Obstetrics	....	$10
Columbia University, Faculty of Medicine, at the New York Postgraduate Medical School, 305 East 20th Street, New York City. Write to: Director of the School	Arranged. 15 sessions (two sections)	Cystoscopy and Endocrinology (Gynecology)	6	$75 [16] for each section
	Arranged. 10 sessions (sections A, B, D); 15 sessions (section C)	Diagnosis and Office Treatment (Gynecology)	6	$40 Sections A, B, D; $60 [16] Section C
	Arranged (except July and Aug.). 8 weeks	Gynecological Endocrinology	4	$100
	Arranged [1] (except July and Aug.). 4 weeks	Surgical Anatomy as Applied to Operative Gynecology (Cadaver)	2-3 [2]	$200 [16]
	Arranged	Gynecological Pathology	....	Arranged
Columbia University, Faculty of Medicine, 630 West 168th Street, New York City, at Margaret Hague Maternity Hospital. Write to: Dean	Monthly (except Nov. and Dec.) 3 months	Internship Training	....	$250
Florida Medical Association, Inc. Write to: Dr. T. Z. Cason, Chairman, Medical Postgraduate Course, 2033 Riverside Avenue, Jacksonville, Fla.	Monthly. 1 month	Observation Course in Obstetrics	....	$100
	Continuously. 2 weeks or more, full time	Gynecology	5	$5
Harvard Medical School, 25 Shattuck Street, Boston, Mass. Write to: Dr. Frank R. Ober, Assistant Dean, Courses for Graduates	Monthly. 1 month or more, full time	Clinical Obstetrics	8 [4]	$125
	July, Aug., Sept.[20]	Gynecology	4 [4]	$75 per month $30
	Monthly. 10 exercises	Gonorrhea in Women	3	$10 [15]
Indiana University Medical Center, 1040-1232 West Michigan Street, Indianapolis, Ind. Write to: Dr. C. J. Clark, Chairman, Department of Postgraduate Instruction	Arranged. 2 weeks, full time	Obstetrics	10	$10 [15]
Maine Medical Association, 142 High Street, Portland, Maine. Write to: Dr. Frederick R. Carter, Chairman, Committee on Graduate Education	Arranged	Home Study Course	Limited [6]	None
New York Medical College, Flower and Fifth Avenue Hospitals, 5th Avenue at 105th Street, New York City. Write to: Dr. J. A. W. Hetrick, Dean	Sept. 27. 1 yr. basic sciences, 2 yrs. approved residency, thesis examinations—leads to degree	Obstetrics and Gynecology	....	$610 1st yr; $502d & 3d yrs.
North Carolina State Board of Health, Raleigh, N. C. Write to: Dr. G. M. Cooper, Director, Maternal and Child Health Service [22]	Weekly.[2] 5 days, full time	Obstetrics and Pediatrics	4-6 [5]	None [17]
University of Illinois College of Medicine, 1853 West Polk Street, Chicago, Ill. Write to: Mr. George Moon, Assistant to the Dean	Arranged. 2 weeks, full time	Obstetrics and Pediatrics	Limited	None
OPHTHALMOLOGY				
Columbia University, Faculty of Medicine at the New York Postgraduate Medical School, 305 East 20th Street, New York City. Write to: Director of the School	Arranged. 15 sessions [21]	Embryology, Histology and Pathology of the Eye	Limited [2]	$75 [16]
New York Eye and Ear Infirmary, 218 Second Avenue, New York City. Write to: Mabel R. Stewart, Registrar	Monthly.[19] 1 month, part time	Anomalies of the Ocular Muscles	8 [1]	$40 [14]
	Monthly.[19] 1 month, part time	Bacteriology of the Eye	4 [1]	$40 [14]
	Monthly.[19] 1 month, part time	External Disease of the Eye	6 [1]	$40 [14]
	Monthly.[19] 1 month, part time	Ocular Therapy	6 [1]	$40 [14]
	Monthly.[19] 1 month or more, part time	Operative Surgery of the Eye	4 [2]	$75 [14]
	July.[20] 6 months, full time	Ophthalmology and Otology	Limited [1]	$600
	Monthly.[19] 1 month, part time	Ophthalmoscopy	4 [1]	$40 [14]
	Monthly.[19] 1 month, part time	Perimetry	6 [1]	$40 [14]
	Monthly.[19] 1 month, part time	Physiological Optics	8 [1]	$75 [14]
	Monthly.[19] 3 months, part time	Refraction	8 [1]	$100 [14]
	Monthly.[19] 1 month, part time	Slit Lamp Course	6 [1]	$50 [14]

References will be found on p. 701

Continuation Courses for Practicing Physicians—July 1, 1943–Sept. 30, 1943—Continued

Institution	Schedule of Course	Title of Course	Number of Students Accepted	Registration Fee and/or Tuition
OPHTHALMOLOGY—Continued				
Tufts College Medical School, 30 Bennet Street, Boston, Mass. Write to: Dr. Samuel Proger, Chairman, Postgraduate Division	Monthly. 1 month, part time	External Eye Diseases.....	Limited	$50 [12]
University of Pennsylvania Graduate School of Medicine, 237 Medical Laboratories, Philadelphia, Pa. Write to: Dr. R. C. Buerki, Dean, The Medico-Chirurgical College	Arranged. 8 weeks, part time	Ocular Refraction	Individuals [2]	$270
	Arranged. 8 weeks, part time	Ophthalmic Histology and Pathology	Individuals [2]	$200
	Arranged. 2 weeks, part time	Ophthalmic Operations (Cadaver)	Individuals [2]	$270
ORTHOPEDICS—See Surgery				
OTOLARYNGOLOGY—See also Ophthalmology				
Columbia University, Faculty of Medicine, at the New York Postgraduate Medical School, 305 East 20th Street, New York City. Write to: Director of the School	Arranged.[1] 4 weeks or longer	Diagnostic Procedures in Otolaryngology	6	$30 [16]; $50 for 2 sections
	Arranged.[1] (Except in July and Aug.)	Dissection of the Head and Neck	Minimum: 2 [2]	Arranged [16]
	Arranged.[1] 15 sessions [21]	Embryology, Histology and Pathology of the Ear, Nose and Throat	Limited [2]	$75 [16]
	Arranged.[1] (Except in July & Aug.)	Surgical Anatomy as Applied to Otology (Cadaver)	2-6 [2]	Arranged [16]
	Arranged.[1] (Except in July & Aug.)	Surgical Anatomy as Applied to Rhinology and Laryngology (Cadaver)	2-6 [2]	Arranged [16]
Harvard Medical School, 25 Shattuck Street, Boston, Mass. Write to: Dr. Frank R. Ober, Assistant Dean, Courses for Graduates.	Arranged. 2 weeks, full time	Bronchoscopy and Esophagoscopy	Limited [3]	$150
	Monthly, (except Apr. & Aug.) 1 month, full time	Clinical Otology	2[3]	$50
	Arranged. 2 weeks, full time	Physiology of the Cochlea and Vestibular Apparatus	2	$50
	Arranged	Technique of Submucous Resection of the Nasal Septum	Limited	$75 for 5 exercises
New York Eye and Ear Infirmary, 218 Second Avenue, New York City. Write to: Mabel R. Stewart, Registrar	Monthly.[19] 4 weeks, part time	Anatomy of the Ear.....	4 [1]	$45 [14]
	Monthly.[19] 1 month or more, part time	Bacteriology of the Ear.....	4 [1]	$40 [14]
	Monthly.[19] 1 month, part time	Clinical Otology	4 [1]	$40 [14]
	Monthly.[19] 1 month, part time	Operative Surgery of the Ear and Nasal Accessory Sinuses	4 [1]	$110 [14]
New York Medical College, Flower and Fifth Avenue Hospitals, 5th Avenue at 105th Street, New York City. Write to: Dr. J. A. W. Hetrick, Dean	Arranged. 80 hours	Applied Anatomy of Ear, Nose and Throat	....	$165
	Sept.[27] 1 yr. basic sciences; 2 yrs. approved residency, thesis examinations—leads to degree	Otolaryngology	....	$610 1st yr.; $50 2d and 3d yrs.
University of Pennsylvania Graduate School of Medicine, 237 Medical Laboratories, Philadelphia, Pa. Write to: Dr. R. C. Buerki, Dean, The Medico-Chirurgical College	Arranged. 2 weeks, full time	Bronchoesophagology, Gastroscopy and Laryngeal Surgery.	Individuals [2]	$250
	Arranged. 2 weeks, part time	Otologic Operations (Cadaver)	Individuals [2]	$250
	Arranged. 10 days, part time	Rhinolaryngologic Operations (Cadaver)	Individuals [2]	$150
Temple University School of Medicine, 3400 North Broad Street, Philadelphia, Pa. Write to: Professor Chevalier L. Jackson, Director	July. Full time	Bronchoesophagology and Gastroscopy	....	$250 [26]
Tufts College Medical School, 30 Bennet Street, Boston, Mass. Write to: Dr. Samuel Proger, Chairman, Postgraduate Division	Monthly. Part time	Otolaryngology	....	$30, $50 [12]
PATHOLOGY—See also Obstetrics and Gynecology; Ophthalmology; Otolaryngology				
Harvard Medical School, 25 Shattuck Street, Boston, Mass. Write to: Dr. Frank R. Ober, Assistant Dean, Courses for Graduates	Monthly. Hours arranged	Pathology [10]	4	$40
	Monthly (except Aug.). 1 month, full time	Pathology of Obstetrics and Gynecology [10]	2 [2]	$125
	July.[20] 1 month, full time	Pathology (General and Surgical)	6 [11]	$60
	August.[20] 2 weeks, part time	Pathology of Tumors.....	8 [2,11]	$50
	Arranged	Research in Pathology.....	....	Arranged [12,13]
New York Polyclinic Medical School and Hospital, 345 West 50th Street, New York City. Write to: Dr. F. H. Dillingham, Executive Officer	Arranged	Pathology and Bacteriology (Practical Laboratory Instruction)	....	Arranged [16]
PEDIATRICS—See also Obstetrics and Gynecology				
Columbia University, Faculty of Medicine, at the New York Postgraduate Medical School, 305 East 20th Street, New York City. Write to: Director of the School	July [1] 4 weeks, part time	Clinical Pediatrics	3-9	$40 [16]
	July 12-16 (six days)	Symposium on Recent Advances in Pediatrics	....	$35
Florida Medical Association, Inc. Write to: Dr. T. Z. Cason, Chairman, Medical Postgraduate Course, 2033 Riverside Avenue, Jacksonville, Fla.	Continuously. 2 weeks or more, full time	Pediatrics	5	$5
Harvard Medical School, 25 Shattuck Street, Boston, Mass. Write to: Dr. Frank R. Ober, Assistant Dean, Courses for Graduates	July, Sept.[20] 1 year, full time	Pediatrics	Limited [2,11]	$300
Maine Medical Association, 142 High Street, Portland, Maine. Write to: Dr. Frederick R. Carter, Chairman, Committee on Graduate Education	Arranged	Home Study Course.....	Limited [6]	None
New York Medical College, Flower and Fifth Avenue Hospitals, 5th Avenue at 105th Street, New York City. Write to: Dr. J. A. W. Hetrick, Dean	Sept. 27. 1 yr. basic sciences; 2 yrs. approved residency, thesis examinations—leads to degree	Pediatrics	....	$610 1st yr.; $50 2d and 3d yrs.
New York Polyclinic Medical School and Hospital, 345 West 50th Street, New York City. Write to: Dr. F. H. Dillingham, Executive Officer	Arranged. 4 weeks, part time	Pediatrics	10	$50
PERITONEOSCOPY—See Gastroenterology				
PHYSICAL THERAPY				
American Congress of Physical Therapy, Palmer House, Chicago. Write to: Executive Director, 30 N. Michigan Avenue, Chicago	Sept. 8-11	Physical Therapy Lectures.....	....	$2, single lecture; $15, full schedule of 9 lectures

References will be found on p. 701

Continuation Courses for Practicing Physicians—July 1, 1943–Sept. 30, 1943—Continued

Institution	Schedule of Course	Title of Course	Number of Students Accepted	Registration Fee and/or Tuition
PHYSIOLOGY—See also Public Health				
Harvard Medical School, 25 Shattuck Street, Boston, Mass. Write to: Dr. Frank R. Ober, Assistant Dean, Courses for Graduates	Arranged	Research in Physiology.....	....	Arranged [12]
PSYCHIATRY & NEUROLOGY				
Boston Psychoanalytic Institute Psychiatry Clinic, 82 Marlborough Street, Boston, Mass. Write to: Director	Arranged	Civilian War Neuroses and Their Treatment	40	None
Catholic University of America, Child Center, Washington, D. C. Write to: Dean of the Graduate School	Sept.[20] 4½ months, part or full time	Child Psychiatry	....	$150 [13]
Harvard Medical School, 25 Shattuck Street, Boston, Mass. Write to: Dr. Frank R. Ober, Assistant Dean, Courses for Graduates	Arranged	Neuroanatomy, Neurophysiology, Neuropathology, Clinical Neurology or Neurosurgery [18]	....	Arranged
	July.[20] 4 weeks, full time	Neurology of Speech and Reading	....	$50 [13]
	Arranged	Psychiatry: General Course or Special Fields	Individuals	Arranged
	Arranged	Research in Neuropathology...	....	Arranged
Institute for Psychoanalysis, 43 East Ohio Street, Chicago, Ill. Write to: Helen Rose, Administrative Director	On demand. 2 weeks, part time	Clinical Discussions of War Neuroses	50	None
The Menninger Clinic, Topeka, Kan. Write to: Dr. Karl Menninger, Chief of Staff	Continuously. 12 weeks, part time	Application of Psychoanalysis to the Study of Psychiatric Problems and of the Psychoses	....	$30
	Quarterly. 1 year, full time	Psychoanalytic Instruction	4 [1]	None
	Quarterly. 1 year, full time	Resident Training	4 [1]	None
	Arranged. Full time	Short Courses	....	$100 per mo.
New York Medical College, Flower and Fifth Avenue Hospitals, 5th Avenue at 105th Street, New York City. Write to: Dr. J. A. W. Hetrick, Dean	Sept. 1. 15 hours	Techniques of Psycho-analytic Therapy	....	$25
University of Pennsylvania Graduate School of Medicine, 237 Medical Laboratories, Philadelphia, Pa. Write to: Dr. R. C. Buerki, Dean, The Medico-Chirurgical College	Arranged. 6 weeks, 240 hours	Clinical Psychiatry	Individuals [2]	$100
	Arranged. 10 weeks, part time	Clinicobiologic Neurology and Psychiatry	Individuals [9]	$100
PUBLIC HEALTH				
Johns Hopkins University, School of Hygiene and Public Health, 615 North Wolfe Street, Baltimore, Md. Write to: L. J. Reed, Dean	August [20]	Bacteriology. Public Health Laboratory Practice	4 [27]	Arranged
	August.[20] 2 months	Courses in Public Health.....	Limited [2]	Varies
	Continuous.[20] 2 months	Venereal Diseases. Advanced Clinical Work in Venereal Disease	Limited [28]	Arranged
Loyola University School of Medicine, 706 Wolcott Avenue, Chicago, Ill. Write to: Miss McGowan, Secretary, Department of Preventive Medicine, Public Health and Bacteriology	Quarterly (except in July or August)	Courses in Administration, Laboratory, Education, Mental Hygiene and Sanitation	Individuals	Arranged
New York State Department of Health, at Albany Medical College, 47 New Scotland Avenue, Albany, N. Y. Write to: Extension Course Office, Albany Medical College	Arranged. 1 year	Extension Course in Public Health	Limited [5]	$40
University of North Carolina, Chapel Hill, N. C. Write to: Dr. Walter Reece Berryhill, Chairman, Division of Medical Sciences	Summer quarter	Field Work in Public Health Education	Limited	$100
	Throughout the year (summer quarter)	Public Health Problems.....	....	$100 each quarter
	Throughout the year (summer quarter)	Research in Maternal Hygiene.	Limited [31]	$100 each quarter
University of Minnesota Medical School, Minneapolis, Minn. Write to: Dr. Harold S. Diehl, Dean	Sept.[20] 1-3 quarters	Courses for Training Medical Health Officers	....	$25, $50 [15]
RADIOLOGY—See also Cardiology; Military Medicine				
Harvard Medical School, 25 Shattuck Street, Boston, Mass. Write to: Dr. Frank R. Ober, Assistant Dean, Courses for Graduates	Monthly. 1 month, full time	General Roentgenology.....	3 [4]	$100
	Monthly. 1 month, full time	General Roentgenology.....	2 [1]	$100
	Monthly. 1 month, full time	General Roentgenology.....	Limited [1]	$50
	Monthly. 1 month, part time	Roentgenology in Diseases of the Eye, Ear, and Accessory Sinuses	3	$35
New York Eye and Ear Infirmary, 218 Second Avenue, New York City. Write to: Mabel R. Stewart, Registrar	Monthly.[19] 6 weeks, part time	Ophthalmic and Otologic Roentgenology	Limited [1]	$40 [11]
New York Medical College, Flower and Fifth Avenue Hospitals, 5th Avenue at 105th Street, New York City. Write to: Dr. J. A. W. Hetrick, Dean	Arranged. 2 months	Radiology	....	$150
	Sept. 27. 1 yr. basic sciences, 2 yrs. approved residency, thesis, examinations—leads to degree	Radiology	....	$610 1st yr.; $50 2d and 3d yrs.
New York Polyclinic Medical School and Hospital, 345 West 50th Street, New York City. Write to: Dr. F. H. Dillingham, Executive Officer	Monthly. 6 weeks or 3 months, full time	Diagnostic Roentgenology and Radiotherapy (Advanced)	10 [2]	$150, $300 [16]
RHINOLOGY—See Otolaryngology				
SURGERY—See also Anatomy; Military Medicine; Obstetrics & Gynecology; Ophthalmology; Otolarnygology; Pathology				
Columbia University, Faculty of Medicine, at the New York Postgraduate Medical School, 305 East 20th Street, New York City. Write to: Director of the School	Arranged. 8 sessions	Blood Transfusion; Blood and Plasma Bank	1-8	$35 [10]
	Arranged (except in July and Aug.). 12 sessions	Dissection and Surgical Anatomy	Minimum: 2 [2]	$125 [14]
	Five sessions. Arranged (except in July and Aug.)	Surgical Anatomy as Applied to Colon and Rectal Surgery (Cadaver)	2	$75
	Arranged (except in July and Aug.). 12 sessions	Surgical Anatomy as Applied to Thoracic Surgery (Cadaver)	2-6 [2]	$125 [14]

References will be found on p. 701

Continuation Courses for Practicing Physicians—July 1, 1943–Sept. 30, 1943—Continued

Institution	Schedule of Course	Title of Course	Number of Students Accepted	Registration Fee and/or Tuition
SURGERY—Continued				
Florida Medical Association, Inc. Write to: Dr. T. Z. Cason, Chairman, Medical Postgraduate Course, 2633 Riverside Avenue, Jacksonville, Fla.	Continuously. 2 weeks or more, full time	Orthopedic Surgery	10	$5
Harvard Medical School, 25 Shattuck Street, Boston, Mass. Write to: Dr. Frank R. Ober, Assistant Dean, Courses for Graduates	Monthly. 1 month, part time	Clinical Orthopedic Surgery...	1 or more	$50
	Monthly (except Aug.). Hours arranged	Endoscopy	2	Arranged
	Arranged. 1 month, full time	Minor Surgery, Designed for Practitioners	Minimum: 8	$150
Maine Medical Association, 142 High Street, Portland, Maine. Write to: Dr. Frederick R. Carter, Chairman, Committee on Graduate Education	Arranged	Home Study Course.....	Limited [6]	None
New York Medical College, Flower and Fifth Avenue Hospitals, 5th Avenue at 105th Street, New York City. Write to: Dr. J. A. W. Hetrick, Dean	Arranged. [a]160 hours, [b]195 hours	Abdomen—Including Pelvis and Pudendum, either sex,[a] both sexes [b]	....	[a]$205, [b]$ 270
	Arranged. 40 hours	Lower Extremities—Orthopedic	....	$90
	Arranged. 60 hours	Lower Extremities—Surgical....	....	$115
	Arranged. 160 hours	Surgical Anatomy, Head and Neck	....	$275
	Arranged. 52 hours	Surgical Technique	....	$375
	Arranged. 100 hours	Thorax, including Axillae and Pectoral Region	....	$200
	Arranged. 40 hours	Upper Extremities, including Shoulder Girdle Axillae and Mammae—Orthopedic	....	$90
	Arranged. 60 hours	Upper Extremities, including Shoulder Girdle Axillae and Mammae—Surgical	....	$115
Tufts Medical School at Beth Israel Hospital. Write to: Chairman, Postgraduate Division, 30 Bennet Street, Boston, Mass.	July 12-24	Clinical Teaching on Surgical Wards, in Operating Room, and in Surgical Outpatient Clinics	....	$150 [33]
SYPHILOLOGY—See Dermatology & Syphilology				
TROPICAL MEDICINE				
Tulane University of Louisiana School of Medicine. Write to: Director, Department of Graduate Medicine, 1430 Tulane Avenue, New Orleans, La.	Last week of Sept. 4½ months	Tropical Medicine and Medical Parasitology	Limited [1,11]	$300
TUBERCULOSIS				
California Tuberculosis Association, 45 Second Street, San Francisco, Calif. Write to: Mr. William F. Higby, Secretary	Arranged. 1 week	Tuberculosis	Individuals	None [17]
City of Chicago Municipal Tuberculosis Sanitarium, 2049 Washington Boulevard, Chicago, Ill. Write to: Department of Clinics	On request. 2 months, part time	Comprehensive Course in Tuberculosis	Minimum: 20	None
	Continuously. Part time	Tuberculosis	....	None
Mississippi State Sanatorium, Sanatorium, Miss. Write to: Dr. Henry Boswell, Superintendent	Arranged. 2 weeks or more	Clinical Medicine and Chest Diseases	....	None
UROLOGY—See also Surgery				
Columbia University, Faculty of Medicine, at the New York Postgraduate Medical School, 305 East 20th Street, New York City. Write to: Director of the School	Arranged [1]	Short Courses in Special Subjects	Individuals [2]	Arranged [16]
Joint Committee on Postgraduate Education, 1313 Bedford Avenue, Brooklyn, N. Y., at the Long Island College of Medicine. Write to: Dr. Simon R. Blattels, Chairman	Monthly. 1 month or more, part time	Urology	3	$25 per mo.
New York Medical College, Flower and 5th Avenue Hospitals, 5th Avenue at 105th Street, New York City. Write to: Dr. J. A. W. Hetrick, Dean	Sept. 27. 1 yr. basic sciences, 2 yrs. approved residency, thesis, examination—leads to degree	Urology	....	$610 1st yr.; $50 2d and 3d yrs.
University of Pennsylvania Graduate School of Medicine, 237 Medical Laboratories, Philadelphia, Pa. Write to: Dr. R. C. Buerki, Dean, The Medico-Chirurgical College	Arranged. 6 weeks, part time	Cystoscopy, Chromoureteroscopy and Pyelography	Individuals [2]	$300
VENEREAL DISEASE CONTROL—See also Public Health				
Institute for the Control of Syphilis, University of Pennsylvania Hospital, 3400 Spruce Street, Philadelphia, Pa. Write to: Dr. John H. Stokes, Director	Arranged. 5 or 10 days	Management of Syphilis and Other Venereal Diseases	....	$25
	Arranged. 1 month or more	Management of Venereal Diseases	Individuals	$50 per mo.
New York City Department of Health, Bureau of Social Hygiene, 125 Worth Street, New York City. Write to: Dr. Theodore Rosenthal, Director	Continuously	Practical Seminar in the Diagnosis, Treatment and Control of Venereal Disease	....	None
United States Public Health Service Medical Center, Hot Springs National Park, Ark. Write to: Dr. Austin V. Deibert, Medical Officer	4 weeks, full time [20]	Management of Venereal Diseases	30 [32]	None

1. Physicians who have had adequate preliminary training and/or experience.
2. Specialists.
3. Limited to applicants approved by the instructor, department head, etc.
4. Male physicians only.
5. Physicians licensed to practice in the state.
6. Members of the organization.
7. Officers of the United States Army, Navy or Naval Reserve on active duty.
8. Medical Reserve Officers of the United States Army.
9. A faculty course for staff members of mental institutions.
10. Microscope required.
11. A temporary license to practice medicine in the state is required.
12. A registration fee of $5 covers all courses taken within the year.
13. Plus a laboratory fee.
14. Plus a matriculation fee and/or incidental fee.
15. Returned on satisfactory completion of the course.
16. Grants may be made from a scholarship fund.
17. Per diem and/or maintenance provided.
18. Assistantships, internships, residencies available.
19. Register two to six weeks in advance.
20. Repeated.
21. Longer courses arranged in units of 12 sessions each.
22. Given at separate hospitals for Negro and White physicians.
23. Applicants must not be over 36 years of age.
24. Plus service in the outpatient department.
25. For M.D.'s under 40 years of age.
26. Fifty dollars for M.D.'s in armed forces.
27. Students working for degree given preference.
28. Limited to special venereal disease students.
29. Primarily Internists and Pathologists
30. Women are admitted.
31. Physicians with medical degree.
32. Physicians recommended by directors of state or city health departments.
33. Evening instruction in applied surgical anatomy on cadavers may be arranged at extra fee of $25.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

BOARDS OF MEDICAL EXAMINERS
BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of boards of medical examiners and boards of examiners n the basic sciences were published in THE JOURNAL, June 26, page 637.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II.* August 2-4. *Part III.* June and also at different times at various centers having 5 or more eligible applicants. Sec., Dr. J. S. Rodman, 225 S. 15th St., Philadelphia.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: *Written.* Various centers, Sept. 27. *Oral.* Philadelphia, Nov. 5-6. Final date for filing application is August 16. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston.

AMERICAN BOARD OF INTERNAL MEDICINE: *Written.* Oct. 18. Final date for filing application is Sept. 1. Asst. Sec., Dr. William A. Werrell, 1301 University Ave., Madison, Wis.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Written. Part I.* Locally, Feb. 12. Final date for filing application is Nov. 15. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh, Pa.

AMERICAN BOARD OF OPHTHALMOLOGY: *Oral. Parts I and II.* Chicago, Oct. 8-9. Sec., Dr. John Green, 6830 Waterman Ave., St. Louis, Mo.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: *Part I.* New Orleans, Oct. 8-9. New York, Oct. 15-16. Chicago, Oct. 22-23. San Francisco, Oct. 29-30. Final date for filing application is Aug. 10. Sec., Dr. Guy A. Caldwell, 3503 Prytania St., New Orleans, Louisiana.

AMERICAN BOARD OF PEDIATRICS: *Written.* Locally, Oct. 8. *Oral.* New York City, Nov. 20-21, and Cincinnati, Dec. 11. Final date for filing applications is Aug. 10. Starting July 1, 1943, Group I will be abolished. Sec., Dr. C. A. Aldrich, 707 Fullerton Ave., Chicago.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: *Written.* Locally, Oct. 30. *Oral.* Locally, Dec. 20-21. Final date for filing application is Sept. 30. Sec., Dr. Walter Freeman, 1028 Connecticut Ave. N.W., Washington, D. C.

AMERICAN BOARD OF SURGERY: *Written. Part I.* Oct. 7. Final date for filing application is Aug. 1. Sec., Dr. J. S. Rodman, 225 S. 15th St., Philadelphia.

AMERICAN BOARD OF UROLOGY: *Oral.* Chicago, February. *Written.* Various centers, December. Final date for filing application is Nov. 1. Sec., Dr. Gilbert J. Thomas, 1409 Willow St., Minneapolis, Minn.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Federal Food, Drug and Cosmetic Act: Marmola Tablets for Obesity Misbranded.—The United States filed a libel in the federal district court, western district, Wisconsin, for the condemnation of a shipment in interstate commerce of Marmola Prescription Tablets, marketed as a cure for obesity, on the grounds that the preparation was misbranded within the meaning of the Federal Food, Drug and Cosmetic Act. The Raladam Company, hereinafter referred to as the claimant, which marketed the preparation to wholesale and retail outlets, intervened in the proceeding, denied the allegations of the libel and contended that the provisions of the Federal Food, Drug and Cosmetic Act relied on by the government were unconstitutional.

The district court first disposed of the claimant's contention that the provisions of the Federal Food, Drug and Cosmetic Act relied on by the government were unconstitutional. That act, said the court, was designed to regulate commerce in food, drugs and cosmetics and to protect the public against foods and drugs that are dangerous to health as well as those which are falsely branded. It is well settled that Congress has the power, under the commerce clause of the Federal Constitution, to condemn the interstate transportation of misbranded drugs and to make such articles contraband when so transported. Section 502 of the act [21 U. S. C. A. 352] provides that a drug or device shall be deemed to be misbranded "(*a*) if its labeling is false or misleading in any particular . . . [or] (*j*) if it is dangerous to health when used in the dosage, or with the frequency or duration prescribed, recommended, or suggested in the labeling thereof." Subsection *n*, section 201 of the act [21 U. S. C. A. 321], provides that in determining whether the labeling of an article is misleading there shall be taken into account, among other things, not only representations made or suggested by statements, words, designs, devices or any combination thereof but also the extent to which the labeling fails to reveal facts material in the light of such representations or material with respect to consequences which may result from the use of the article to which the labeling relates under the conditions of use prescribed in the labeling. There is no constitutional objection to any of these sections. There was no unlawful delegation of legislative power by Congress, nor do the acts of the government pursuant to the provisions of the statute constitute an exercise of legislative power in violation of the constitution. Congress has set up in the act its own policies and standards, and the act and the sections thereof involved in these proceedings are well within the powers of Congress to enact.

The libel alleged that the preparation was misbranded within the meaning of the three sections of the act mentioned because (1) it was dangerous to health when used in the dosage or with the frequency prescribed in its labeling and (2) the labeling was false and misleading by reason of its failure to reveal facts with respect to consequences which may result from its use under the conditions of use prescribed on the label. The claimant denied these allegations. There was present in each tablet of the preparation ½ grain (0.03 Gm.) of desiccated thyroid, containing approximately 0.3 per cent organic iodine, which is about 50 per cent more organic iodine than is present in desiccated thyroid U. S. P., producing consequently greater physiologic effect than equivalent amounts of a U. S. P. product of desiccated thyroid. It was the failure of the label adequately to conform to the provisions of the act previously discussed because of the presence of the desiccated thyroid in the preparation that formed the real basis of the government's libel. According to the labeling of the preparation, it is intended as a cure for obesity and is for use only by obese persons who are otherwise normal and healthy and whose obesity is caused by hypothyroidism with accompanying subnormal metabolism. The labeling further represents that hypothyroidism is the basic cause of obesity, which results from a lack of a substance which Marmola supplies, and recommends a dosage, where indicated, of 4 tablets daily. This daily dosage recommended, the court observed, is equivalent to 2 grains (0.13 Gm.) of desiccated thyroid containing 0.3 per cent organic iodine, or to 3 grains (0.2 Gm.) of desiccated thyroid containing 0.2 per cent organic iodine in a U. S. P. product. The court then went on to discuss the reasons why the preparation if marketed as labeled was potentially dangerous.

The preparation, said the court, is offered to the public as a treatment for obesity, which was defined by the expert witnesses in the case as an excessive development or excessive storage of fat throughout the body. Those witnesses differed in their opinions as to the cause of obesity and its cure. Some believed that overweight is caused by excessive eating and lack of proper exercise and that the weight may be reduced by dietary measures coupled with adequate exercise. Some witnesses called by the claimant believed that most obesity is caused by endocrine disturbances or disorders; that the thyroid gland is the regulator of the metabolic processes and that obesity is due at least in a large part to the deficient activity in this gland and hence that in its treatment thyroid medication is indicated. Other witnesses believed that obesity is caused both by overeating and by endocrine disturbance. To determine the significance of the objectionable labeling in the light of the expert testimony, the court then found it necessary to discuss hypothyroidism and metabolism. Hypothyroidism, said the court, is the underfunctioning of the thyroid gland, which is a condition of disease, and is accompanied by a subnormal

basal metabolic rate and by other symptoms, such as dryness of the skin, sparseness of hair and eyebrows, sluggishness of physical and mental reactions, decreased appetite, slower pulse rate and characteristic changes in the composition of the blood, and, in advanced stages of hypothyroidism or myxedema, by puffy and swollen appearance of the face and other parts of the body due to a collection of mucoid fluid beneath the skin. Metabolism is the total of the various processes by which food is transformed in the body into the chemicals which are absorbed in the blood stream and lymphatic system to nourish and build up or repair the body and by which tissues are destroyed and waste matter is excreted. The health of the body depends on the well balanced use of the body chemicals. The rate of metabolism is measured by the rate at which the body produces or gives off heat. The "basal metabolic rate" is the lowest rate of chemical activity that will maintain the absolutely essential functions of the body sufficiently to keep an individual alive. Every activity of the body increases the amount of energy consumed. Having ascertained the basal requirements of a person, a physician can, by the addition of the demands of that person's other activities, compute what his total needs will be. Average normal standard rates have been established but normal healthy persons may vary from the average standard normal rate from 10 per cent to 15 per cent more or less than standard. Desiccated thyroid is used in the treatment of hypothyroidism, and the optimum daily dosage in such treatment must be determined for each individual case, as it varies with each individual and is established only by trial and error. That optimum may be as little as ¼ grain (0.016 Gm.) a day, and in most cases less than 2 grains a day, although there are some cases in which dosage exceeds 2 grains a day, depending on the underfunctioning of the individual's thyroid gland. The labeling on Marmola, however, it will be recalled, prescribes in all events and for all individuals of what would be equivalent to 3 grains daily of a U. S. P. product.

There was a substantial agreement, continued the court, among the medical witnesses concerning the following facts: The overdosage of desiccated thyroid results in an increase in the metabolism of the person taking it and has a toxic effect on hypothyroid persons in that it increases their basal metabolic rate and injuriously affects the functioning of the endocrine glands, kidney and liver, impairing their capacity for normal functioning. Overdosage places an extra burden on the organs of the body and results in symptoms undistinguishable from those disclosed in spontaneous hyperthyroidism, such as rapid heart, heart pains, shortness of breath, sleeplessness, nervous and emotional instability, headaches, dizziness, tremor, muscular weakness, disturbances of the alimentary canal, fatigue, nausea and, in women, menstrual disturbances. The symptoms of hyperthyroidism will disappear days or weeks after the discontinuance of desiccated thyroid, but sometimes a more serious and permanent disease and injury to health results. Many persons who consider themselves normal and healthy have been found to have physical impairments or diseases, such as impairment of the heart, diabetes or tuberculosis, which may be discovered only by a thorough physical examination by an experienced physician. Were such a person to take 2 grains of desiccated thyroid a day the heretofore unknown disease or ailment would be aggravated. In sound medical practice a physician will prescribe thyroid for hypothyroidism only after a careful physical examination is made of the patient's head, eyes, throat, chest, lungs, heart, abdomen and reflexes covering the nervous system to ascertain whether the patient is suffering from any latent or underlying disease of which he is unaware, such as diabetes, tuberculosis or heart ailment. In some instances, a basal metabolism is done, roentgenograms of the chest are made and an electrocardiogram of the heart is obtained. Any drug, the court emphasized, which for safety in its use requires diagnosis and evaluation, and when taken in the dosage and with the frequency recommended and suggested in its labeling may expose the users to disease and pain is dangerous to health. Marmola is such a drug. In it there is an inherent and potential danger that may reasonably be expected to attend its use when one considers that it will be used by the strong, the weak, the old, the young, the well and the sick without first having a physical examination or a diagnosis made by a competent physician.

Obesity, continued the court, is not caused by hypothyroidism, as is suggested in Marmola's labeling. Those suffering from hypothyroidism are sometimes overweight owing to the deposit in the body of a mucoid substance which is not fat and which desiccated thyroid may remove under proper treatment. Desiccated thyroid may stimulate the appetite, and its use may result in increased weight unless the dosage is so large as to result in hyperthyroidism, which is a disease. Obesity is not affected materially by the use of Marmola prescription tablets as prescribed or by desiccated thyroid of comparable daily dosages except by producing and maintaining a condition of hyperthyroidism. The discontinuance of Marmola on the appearance of unpleasant effects or unusual circumstances or conditions does not avoid danger. When these effects or conditions appear, the user is in a state of hyperthyroidism, which, in some cases, may result in the precipitation of more serious and permanent injury. A substantial portion of the public, after reading the labeling on the preparation, would conclude that obesity is caused by the lack of some substance in the human body which Marmola supplies and that Marmola is a safe and efficient remedy for obesity, which is not a fact. The labeling fails to inform the prospective user that if he is suffering from hypothyroidism he is not healthy and normal. It places a duty on the user to make a self diagnosis to determine whether he is suffering from hypothyroidism. The layman lacks familiarity with medical terminology. He has little or no knowledge of medical science and does not possess that skill and learning required to determine whether he is suffering from hypothyroidism. The labeling does not recommend that an obese person considering the use of Marmola should first consult a physician. It does advise that he consult a physician if he desires special advice in any unusual condition or more advice than appears on the label.

The Federal Food, Drug and Cosmetic Act, said the court, was not made for experts, nor is it intended to prevent self medication. The purpose of the law is to protect the public, the vast multitude which includes the ignorant, the unthinking and the credulous, who, when making a purchase, do not stop to analyze. It was enacted to make self medication safer and more effective and to require that drugs moving in interstate commerce be properly labeled so that their use as prescribed may not be dangerous to the health of the user. The court, after stating that the administration of "thyroid tablets in Marmola dosages" is a dangerous procedure and should not be undertaken without a thorough examination by a competent physician, was convinced that Marmola, when used as prescribed in the labeling, was neither a safe, an appropriate nor an efficient remedy for obesity; that it was dangerous to the health of the user when used in the dosage or with the frequency and duration prescribed; that the labeling is false and misleading in its representations that it is a safe remedy for obesity and in that it fails to reveal facts material with respect to consequences which may result from the use of Marmola under the circumstances prescribed in the labeling. The court held that the product was misbranded within the meaning of the Federal Food, Drug and Cosmetic Act. Accordingly it ordered that a decree of condemnation issue.—*United States v. 62 Packages, More or Less, of Marmola Prescription Tablets, 48 F. Supp. 878 (1943).*

Society Proceedings

COMING MEETINGS

Montana, Medical Association of, Billings, July 7-8. Dr. Thomas F. Walker, 206 Medical Arts Building, Great Falls, Secretary.

Utah State Medical Association, Salt Lake City, Aug. 27-28. Dr. D. G. Edmunds, 610 McIntyre Bldg., Salt Lake City, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1932 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American J. Obstetrics and Gynecology, St. Louis

45:365-546 (March) 1943. **Partial Index**

Presidential Address: Factors Influencing Geographic Distribution of Obstetrician and Gynecologist. G. D. Royston.—p. 365.
Effect of Preoperative Irradiation on Adenocarcinoma of Uterus. H. E. Schmitz, J. F. Sheehan and Janet Towne.—p. 377.
Radium Therapy in Benign Uterine Bleeding: Study Based on 350 Cases. A. J. Rongy and A. D. Seley.—p. 390.
*Glycogen Index in Menopause: Study of Certain Estrogen Functions Based on New Method of Staining Vaginal Smears. H. C. Mack. —p. 402.
Clinical Differential Demonstration of Uterine and Tubal Contractions by Kymographic Uterotubal Insufflation. I. C. Rubin.—p. 419.
Hydatidiform Mole and Associated Tumors of Chorion. T. J. Williams. —p. 432.
Sarcoma of Uterus. C. L. Randall.—p. 445.
Postpartum Observation of Pelvic Tissue Damage. H. L. Gainey.—p. 457.
Urinary Incontinence in Women. V. S. Counseller.—p. 479.
Posterior Vaginal Enterocele: Hernia of Culdesac of Douglas. L. E. Phaneuf.—p 490.
Factitial Proctitis. L. M. Randall and L. A. Buie.—p. 505.
Effects of Estrogenic Therapy on Ovarian Function: II. When Employed During Anovulatory Cycles. E. C. Hamblen, D. V. Hirst and W. K. Cuyler.—p. 513.
Management of Ovarian Tumors in Elderly Women. J. W. Goldsmith Jr.—p. 518.
Implantation of Trichomonas Tenax (Buccalis) into Human Vagina. L. G. Feo and R. M. Stabler.—p. 529.
Actinomycosis of Ovary. B. H. Neiman and A. H. Fahrner.—p. 534.

Glycogen Index in Menopause.—Mack reports on the application of the iodine vapor method of staining and the estrogenic response of vaginal smears during the menopause of 130 women and the glycogen response of the smears (as determined by the method) to various commercial estrogens. The method is based on the observation that the normal vaginal glycogen content parallels estrogen sufficiency, whereas diminution of glycogen is indicative of estrogen deficiency. Vaginal smears of 130 climacteric women (after staining by the iodine vapor procedure) were graded according to their glycogen content. Possible "antihormonal" effects of various systemic and local disorders (febrile states and vaginitis) on estrogenic activity are suggested by observation of tuberculous women. The method provides a sensitive index of human estrogenic activity. The persistence of vaginal glycogen in variable amounts in menopausal women provides additional evidence of continued estrogen elaboration by the ovary or extragenital sources. The clinical usefulness of the method is at present limited to the control of estrogen therapy in vaginitis and to the investigation of estrogen potencies in women with advanced menopausal atrophy. Experience with the glycogen index in the human subject permits the following tentative deductions: Theelol is less effective than an equal weight of theelin. Alpha-dihydrotheelin produces an estrogenic effect comparable to that induced by an equal weight of theelin in oil. Diethylstilbestrol in oil solution produces a more rapid glycogen effect when given by mouth than equal weights of theelin and alpha-dihydrotheelin. The glycogen response to diethylstilbestrol fluctuates widely in comparison to that obtained with theelin and alpha-dihydrotheelin. A theelin-theelol mixture (0.5 mg. of each in oil solution) orally produces a glycogen reaction curve comparable to that induced by 0.5 mg. doses of theelin alone. Theelin produces uniform response and maintenance by all routes of administration and can serve as a standard for comparative assays of estrogen in the human subject.

American Journal of Physiology, Baltimore

138:391-564 (Feb.) 1943. **Partial Index**

Role of Pressoreceptors in Regulation of Blood Pressure in Rabbit. Thelma H. Simister and Ruth E. Conklin, Poughkeepsie, N. Y.—p. 391.
Gluconeogenesis and Cellular Injury: Further Inquiry into Mechanism Involved in Diabetes Enhanced by Inflammation. V. Menkin, with assistance of M. A. Kadish and A. A. Warren, Boston.—p. 396.
Removal of Red Cells from Active Circulation by Sodium Pentobarbital. P. F. Hahn, W. F. Bale and J. F. Bonner Jr., Rochester, N. Y.—p. 415.
*Studies on Hemocencentration and Shock Following Severe Hemorrhage. R. E. Weston, Martha Janota, S. O. Levinson and H. Necheles, Chicago.—p. 450.
Effect of Nembutal Ether Anesthesia on Blood Concentration. L. W. Jarcho, New York.—p. 458.
Sympathetic and Vagal Interaction in Emotional Responses of Heart Rate. D. D. Bond, Boston.—p. 468.
Reactions of Aorta in Hemorrhagic Hypertension and Shock. C. J. Wiggers, R. Wégria and N. D. Nickerson, Cleveland.—p. 491.
Capillary Permeability to Intravenously Administered Gelatin. J. M. Little and H. S. Wells, Winston-Salem, N. C.—p. 495.
Studies in Experimental Traumatic Shock, with Particular Reference to Plasma Potassium Changes. Jeanne F. Manery and D. Y. Solandt, Toronto, Canada.—p. 499.
Role of Oxygen in Metabolism and Motility of Human Spermatozoa. J. MacLeod, New York.—p. 512.
Observation on Various Factors Influencing Increase of Erythrocytic Fragility Induced by Stasis. Chiao Tsai, C. J. Chen and K. Y. Chiu, Chengtu, China.—p. 519.
Effect of Bile in Intestine on Secretion of Pancreatic Juice. J. E. Thomas and J. O. Crider, Philadelphia.—p. 548.
Absence of Rennin from Adult Human Gastric Juice. L. B. Dotti and I. S. Kleiner, New York.—p. 557.

138:565-686 (March) 1943. **Partial Index**

Plasma Proteins (Albumin and Globulin) and Red Cell Volume Following a Single Severe Nonfatal Hemorrhage. R. Elman, C. E. Lischer and Harriet Wolf Davey.—p. 569.
Venous Pressure and Circulation Time During Acute Progressive Anoxia in Man. I. Ershler, C. E. Kossmann and M. S. White.—p. 593.
Regional Relationships of Rate of Water Loss in Normal Adults in Subtropical Climate. G. E. Burch and W. A. Sodeman.—p. 603.
Study of Effect of Spontaneous Variations in Blood Pressure on Spontaneous Variations in Volume of Finger Tip. C. Neumann.—p. 618.
Variability of Certain Factors in Blood Picture of Women. Eva G. Donelson, Jane M. Leichsenring and Margaret A. Ohlson.—p. 626.
Roentgenkymographic Determination of Cardiac Output in Syncope Induced by Gravity. H. S. Mayerson.—p. 630.
Disappearance Curves of Dye T-1824 After Its Injection into Blood Stream. B. G. King, K. S. Cole and E. T. Oppenheimer.—p. 636.
Distribution in Leads I, II and III of Potentials Applied to Surface of Heart. H. E. Hoff, L. H. Nahum and W. Kaufman.—p. 644.
Ninhydrin, Crystalline Papain and Fibrin Clot. J. H. Ferguson and P. H. Ralph.—p. 648.
Effects on Man of Severe Oxygen Lack. S. M. Horvath, D. B. Dill and W. Corwin.—p. 659.
Effect of Dietary Composition on Pancreatic Enzymes. M. I. Grossman, H. Greengard and A. C. Ivy.—p. 676.
Effect of Atropine on Coronary Blood Flow of Trained Dogs with Denervated and Partially Denervated Hearts. H. E. Essex, J. F. Herrick, F. C. Mann and E. J. Baldes.—p. 683.

Hemoconcentration and Shock Following Severe Hemorrhage.—Weston and his associates caused typical shock to occur in 11 nondehydrated and 15 dehydrated, unanesthetized, normal dogs by graded hemorrhage. In 2 of the nondehydrated and 8 of the dehydrated animals hemoconcentration occurred. Determination of the plasma volume and plasma protein, before and after hemorrhage, revealed that in the animals with hemoconcentration additional plasma fluid and protein were actually lost as shock developed. Pathologic changes, consisting of gastrointestinal engorgement and hemorrhage, pulmonary congestion and engorgement and occasional changes in other viscera, were observed in a number of animals. The nondehydrated animals tolerated an average total blood loss of 49 per cent as compared to the 43 per cent tolerated by the other animals. The changes in plasma protein concentration after hemorrhage indicated that the hemoconcentration in dehydrated animals was hemodiluted during and after hemorrhage to a lesser degree than in the other animals. This relative inability to hemodilution could explain the animals' inability to tolerate as much bleeding before shock and could lessen the masking by earlier hemodilution of the subsequent hemoconcentration as shock develops. The conflicting reports on hemoconcentration after hemorrhage may be related to the animal's state of hydration. There are no definite grounds for differentiating between hemorrhagic shock and shock from other causes.

American Journal of Public Health, New York

33:201-316 (March) 1943

Mosquito Vectors and Inapparent Animal Reservoirs of St. Louis and Western Equine Encephalitis Viruses. W. M. Hammon, W. C. Reeves and M. Gray, San Francisco.—p. 201.

Public Health Problems Concerned in Disposal of Garbage by Feeding It to Swine. W. H. Wright, Bethesda, Md.—p. 208.

Age and Sex as Factors in Development of Typhoid Carrier State, and Method for Estimating Carrier Prevalence. W. R. Ames, Olean, N. Y., and M. Robins, Albany, N. Y.—p. 221.

Use of Vital Records in Military Service—The Navy. C. S. Stephenson and C. W. Churchill.—p. 231.

Use of Vital Records in Military Service—The Army. G. D. Williams, Washington, D. C.—p. 235.

Community Nursing Service During Wartime. Hortense Hilbert, New York.—p. 239.

Outbreak of Typhoid Fever Due to Small Colony Variety of Eberthella Typhosa. Janie F. Morris, Catherine G. Barnes and T. F. Sellers, Atlanta, Ga.—p. 246.

Nutritional Needs of American Youth. H. D. Kruse, New York.—p. 249.

*Attitude of Nation Toward Immunization Procedures: Study Based on Public Opinion Poll Made in 1941. Leona Baumgartner, New York. —p. 256.

Variations in Phenol Coefficient Determinations of Certain Disinfectants. C. M Brewer, Washington, D. C.—p. 261.

*Comparative Nutritive Value of Butter Fat and Vegetable Oils. E. B. Hart, Madison, Wis.—p. 265.

Attitude Toward Immunization Procedures.—From the results of a public opinion poll taken in September 1941 among the adult white population in the United States it appears to Baumgartner that: 1. In general the public is aware of the value of immunization against and of the serious nature of diphtheria, smallpox and typhoid and sees no specific drawbacks connected with its being inoculated against them. Therefore public health officials and private physicians should urge the procedure. 2. More than 50 per cent of those who are in need of protection say they might be willing to be protected. 3. The public is not well informed concerning when or how often it is necessary to be immunized. The importance of having children protected against diphtheria and smallpox in infancy needs particular emphasis. 4. Adults responsible for the care of children are generally better informed concerning immunization than other adults.

Butter Fat and Vegetable Oils.—The experiments of Hart with young rats indicate that butter fat as compared with certain vegetable oils is superior for their growth. This superiority rests on a constitutional difference and is not related to the differences in the vitamin content. As the sole article of nutrition for infants a "filled milk" in which a vegetable oil has been substituted for the butter fat, based on rat experiments, could give inferior growth; however, no such experiments have been carried out. Until they have been, the burden of proof of equal value must rest with the purveyor of filled milk and the public should be protected from a substitute for natural milk.

Anesthesiology, New York

4:113-232 (March) 1943.

Analysis of Blood for Certain Barbiturates and Variability of Their Concentration in Blood. B. M. Anderson and H. E. Essex.—p. 113.

*Utility of Demerol as Substitute for Opiates in Preanesthetic Medication. E. A. Rovenstine and R. C. Batterman.—p. 126.

Pharmacology of Sodium Cyclopentenylallyl Barbiturate (Cyclopal). J. M. Dille and Helen M. Kipple.—p. 135.

Arterial Oxygen Tension with Nitrous Oxide Anesthesia. W. O. McQuiston, S. C. Cullen and Evelyn V. Cook.—p. 145.

Stellate Ganglion: Its Significance in Practice. C. B. Hickcox, R. M. Tovell, R. Raskind and W. B. Scoville.—p. 150.

Studies in Carbon Dioxide Absorption. W. A. Conroy and M. H. Seevers.—p. 160.

Pentothal Sodium Anesthesia for Dental Surgery in Office Practice and Control of Recovery Time. A. O. Hubbell.—p. 174.

*Comprehensive Review of Continuous Caudal Analgesia for Anesthetists. R. A. Hingson and W. B. Edwards, Stapleton.—p. 181.

Demerol as Substitute for Opiates.—Rovenstine and Batterman used Demerol as a preanesthetic medication in scopolamine combination for 286 patients, and Demerol alone for 52 patients between 15 and 89 years of age. Demerol was given in doses of 50, 75 and 100 mg., and when combined with scopolamine the amounts of the latter were 0.4, 0.5, 0.6 mg. A dose of 100 mg. of Demerol was used whenever it was thought that the patient would have required 0.016 Gm. (¼ grain) of morphine. Preanesthetic medication was considered satisfactory when the patient at the time of induction was calm and emotionally undisturbed but not depressed to the extent that he would not respond readily to ordinary questions. With the Demerol-scopolamine combination, regardless of the anesthetic used, a satisfactory response was obtained with 100 mg. of Demerol hypodermically in 76 per cent of the 166 patients treated, while undue depression was the result in 3 per cent. An equivalent amount of morphine (0.016 Gm.) given to a corresponding number of patients in another service resulted in a satisfactory response in 81 per cent and in deep depression in 9 per cent. Demerol in doses smaller than 100 mg. produced less favorable results except in patients older than 60: a satisfactory preanesthetic state was obtained in 83 per cent of the older patients receiving 75 mg., but this dose was insufficient for 60 per cent of patients between 20 and 60. Three of the 56 patients receiving 75 mg. were too depressed. The 50 mg. dose was likewise unsatisfactory, especially in those less than 60. No individual receiving this amount was too depressed. In 4 aged 63 to 69 the results were satisfactory, but more than half of those between 15 and 60 were apprehensive or the drug appeared to have had little or no effect. The optimal time that should elapse after Demerol and scopolamine were administered and before anesthesia was begun was between forty-five and ninety minutes. Demerol appears to provide psychic sedation not surpassed by morphine, it does not depress respiration or other vital functions to the same degree as morphine does, it facilitates the induction of anesthesia as does morphine, it is more effective in drying secretions than morphine, it has fewer unfavorable side effects and it reduces the usual amount of anesthetic agent required for an optimal narcosis.

Continuous Caudal Analgesia.—Since October 1941 Hingson and Edwards have used continuous caudal analgesia in 250 surgical, gynecologic and urologic procedures and in 600 deliveries. The advantages of the method are ease of administration, accurate control, safety to the mother and the child, freedom from pain during labor or after operation, expedited labor, reduction of the third stage complications and the complications of the puerperium and the indications that such a regimen would facilitate the handling of wartime injuries with considerable and prolonged relief of pain for the injured. The method should be studied in the large recognized obstetric clinics by especially trained physicians before a final appraisal of its merits is given. It is not a procedure to be experimented with in an occasional case. The utmost cooperation must exist between the experienced physician anesthetist and the obstetrician in the handling of a patient so anesthetized. The problem of securing equipment through the wartime rationing is being given serious consideration. Substitute apparatus, especially with regard to needles, should not be encouraged.

Archives of Ophthalmology, Chicago

29:341-522 (March) 1943

Bacteriophage Therapy of Staphylococcic Septic Obstruction of Cavernous Sinus: II. Report of Cases. W. J. MacNeal, Frances C. Frisbee and Anne Blevins.—p. 341.

Experimental Studies of Ocular Tuberculosis: VII. Effect of Desensitization with Tuberculin in Experimental Ocular Tuberculosis. A. C. Woods and E. L. Burky.—p. 369.

Dynamics of Intracapsular Cataract Extraction: Experimental Studies with Reference to Suspensory Ligament, Hannover's Canal and Petit's Space. J. Goldsmith.—p. 380.

Eyelid Closure Reaction. M. B. Bender.—p. 435.

Teratoid Tumor of Conjunctiva and Other Developmental Anomalies with Nevus Verrucosus of Scalp: Report of Case. A. R. Sherman.—p. 441.

Incidence of Green-Red Blindness. R. C. Gray.—p. 446.

Visual Loss Following Distant Hemorrhage. M. M. Scheffler.—p. 449.

Pressure in Central Artery of Retina in Allergy, with Description of New Ophthalmodynamometer. A. Gutmann.—p. 457.

The Eye as Factor in Wartime Lighting. C. E. Ferree and G. Rand. —p. 461.

Leiomyoma of Iris. J. E. Kahler, W. E. Wallace, R. Irvine and A. R. Irvine.—p. 479.

Viruses and Virus Diseases of Eye: II. Viruses of Ocular Importance. P. Thygeson.—p. 488.

California and Western Medicine, San Francisco

58:103-154 (March) 1943

Bronchiogenic Carcinoma: Role of Bronchoscopy. P. C. Samson.—p. 109.
Ectopic Pregnancy: Review of 65 Cases Occurring in General Hospital over an Eight Year Period. W. C. Rogers.—p. 110.
Ureteral Calculus: Its Management. E. W. Beach.—p. 113.
Chronic Brucellosis: Diagnostic Points Noted in 100 Cases. J. F. Griggs.—p. 118.
Mental Illness: Its Early Signs; Role of Family Physician. W. G. Barrett.—p. 125.

Journal of Allergy, St. Louis

14:195-272 (March) 1943

Antibodies to Histamine Induced in Human Beings by Histamine Conjugates. M. B. Cohen and H. J. Friedman.—p. 195.
Allergenic Properties of Vegetable Gums: Case of Asthma Due to Tragacanth. H. H. Gelfand.—p. 203.
Insulin Hypersensitivity with Desensitization: Report of Case. M. A. Weitz.—p. 220.
Detection of "Thermostable" Antibody by Means of Precipitin Reaction: Preliminary Report. S. Hampton, Mary C. Johnson, H. L. Alexander and K. S. Wilson.—p. 227.
Mold Fungi in Etiology of Respiratory Allergic Diseases: II. Mold Extracts—Statistical Study. W. H. Browning.—p. 231.
Source of Allergic Activity of House Dust. Marion T. Davidson.—p. 244.
*Palindromic Rheumatism Among Allergic Persons. W. T. Vaughan.—p. 256.

Palindromic Rheumatism in Allergic Persons.—Vaughan determined the incidence of arthritis in 1,000 consecutive adults with asthma, hay fever, urticaria, angioneurotic edema, migraine, gastrointestinal allergy or allergic dermatitis. Of the total, 382 were males and 618 females; 206 (20 per cent) complained or had complained of rheumatic pains. All but 6 received careful physical examination including the joints. Of the 200 so studied, 90 presented some evidence of articular pathologic changes. Of the 90 with recognizable articular changes, 9 were classified as rheumatoid or atrophic and were characterized especially by spindling of the proximal joints of the fingers, 32 were classified as hypertrophic or osteoarthritic as characterized by nodal enlargement of the terminal joints of the fingers and velvety or sandpaper crepitation of the knee joints, 29 were classified as combined arthritis and in 18 the involvement was limited to large joints other than the knees; in 2 the condition was traumatic. Of the 206, 64 were males and 142 females, and of the 90 with articular changes 25 were males and 65 females. Of the 206, 143 had allergic symptoms attributable to food, 48 inhalant allergy and 15 had only contact dermatitis. The incidence of food allergy was 69 per cent in the 206 with rheumatic history, and the 90 with articular changes and the remaining 31 per cent had no important food allergy. The allergy in 55 per cent of 749 allergic persons without rheumatic complaints was due to food. The foods mentioned as rheumatic offenders did not include the conventional hearsay foods usually suspected in rheumatism.

Journal of Clin. Endocrinology, Springfield, Ill.

3:131-194 (March) 1943

Metabolic Effects of Testosterone Propionate in Addison's Disease. A. T. Kenyon, Kathryn Knowlton, Irene Sandiford and Lillian Fricker, Chicago.—p. 131.
Addison's Disease in 7 Year Old Boy. S. Rosin and S. Friedman, Los Angeles.—p. 137.
*Value of Desoxycorticosterone Acetate in Treatment of Peripheral Vascular Diseases. H. H. Sirota, Brooklyn.—p. 141.
*Nutritional Therapy of Infertility in Male, with Special Reference to Vitamin B Complex and Vitamin E. M. S. Biskind and H. C. Falk, New York.—p. 148.
Serum Diastase and Its Relation to Estrogen Metabolism in Pregnancy and Menstrual Cycle. Sara Schiller and O. W. Smith, Brookline, Mass.—p. 154.
*Treatment of Menstrual Disturbances in Adolescent Girls. B. B. Rubenstein, Chicago.—p. 163.
Secondary Amenorrhea: Case. B. L. Cinberg, New York.—p. 167.
Vaginal Smear Technic: Its Use in Diagnosis of Ovarian Failure, as Index to Efficacy of Endocrine Therapy and as Human Assay Method. H. C. Mack, Detroit.—p. 169.

Desoxycorticosterone Acetate and Peripheral Vascular Diseases.—Sirota states that the beneficial physiologic effect of hypertonic solution of sodium chloride intravenously in thromboangiitis obliterans and arteriosclerosis obliterans can within limits be attained by the intramuscular injection of desoxycorticosterone acetate, which also often appears to lower the blood pressure; more often it may cause an increase in the local cutaneous temperature and occasionally an increase in oscillometric readings. A permanent lowering of the blood pressure was not obtained; rest also was a contributing factor in these cases. The encouraging results in 20 cases appear to warrant more extensive clinical study. Desoxycorticosterone acetate cannot be regarded as a substitute for intravenous saline therapy, but it may serve as an excellent adjuvant. It is useful when an intravenous technic or sudden increases in blood volume are contraindicated.

Infertility in Male and Vitamin Therapy.—According to Biskind and Falk, nutritional therapy, especially with the vitamin B complex, alone or in combination with vitamin E, improved the number, motility and morphology of the sperm of previously infertile men. In others with sterility whose initial specimens of spermatic fluid were apparently normal, therapy with vitamin B complex alone apparently restored fertility without the production of any significant detectable changes in the sperm. Excluding one man among twelve with virtual azoospermia who were so treated, eight impregnations occurred. The wife of one of these patients aborted at the fourth month, but the others are approaching term or have been delivered of normal babies.

Treatment of Menstrual Disturbances in Adolescent Girls.—The vaginal smears of 7 girls from 11 to 15 years of age who complained of severe and/or prolonged menstrual bleeding were studied by Rubenstein. On the basis of the cell types he separated the cases into two groups, one to be treated with estrogen and the other with progesterone. The bleeding of all patients was successfully controlled by the appropriate therapy.

Journal of Immunology, Baltimore

46:47-112 (Feb.) 1943

Antibody Response to Hemoglobin Adsorbed on Aluminum Hydroxide. Frances E. Holford, J. B. Ludden and W. H. Stevens, Madison, Wis.—p. 47.
Studies on Precipitin Production and Anaphylactic Sensitization in Guinea Pigs. H. R. Cohen and M. M. Mosko, Chicago.—p. 59.
*Individual Specificity of Human Serum. R. W. Cumley and M. R. Irwin, Madison, Wis.—p. 63.
Studies on Toxins of Shigella Dysenteriae (Shiga). L. Olitzki, J. Bendersky and P. K. Koch, Jerusalem, Palestine.—p. 71.
Allergy and Immunity in Tuberculosis: I. Immunization and Reinfection of Guinea Pigs with Homologous Variants of Human Tubercle Bacillus Hsr. M. Steiner and B. Zuger, Brooklyn.—p. 83.
Id.: II. Relationship of Tuberculin Cutaneous Reactivity to Experimental Infection in Guinea Pig. B. Zuger and M. Steiner, Brooklyn.—p. 91.
*Nonspecific Factors in Resistance: VI. Incidence of Common Cold in Persons With and Without Accessory Symptomatology of Nonreaginic Food Allergy. W. B. Brown, Irma Graham, Ariel Niedringhaus and A. Locke, Pittsburgh.—p. 101.

Individual Specificity of Human Serum.—According to Cumley and Irwin, following the absorption of precipitins in antihuman serum produced in rabbits, the reactions that were obtained with the serums of different persons led to the conclusion that the serum of human beings contains antigenic components by which the serum of one individual can be distinguished from that of another.

Nonspecific Factors in Resistance.—A study is reported by Brown and his co-workers which extends the evidence recently reported by Coca for the existence of a cause and effect relationship between the presence of nonreaginic food allergy and the predisposition to the common cold. Two or more of Coca's eleven symptomatic evidences (urticaria, indigestion, abdominal pain, constipation, headache, canker sores, dizziness, tiredness, nervousness, neuralgia and sinusitis) of the presence of nonreaginic food allergy were present in 79 per cent of 422 college girls. Each of the symptoms, when present, was associated on the average with a higher incidence of colds than was observed in their absence. There was a progressively higher incidence of colds when the number of symptoms increased.

There was no correlation between the presence of symptoms and poor condition based on the performance of a modified Flack test. The handicap of poor condition was, however, reflected in a heightened cold incidence, as was the handicap of addiction to smoking. The girls with the greatest total handicap, from all sources, had roughly four times as many colds as those with the least.

Journal of Lab. and Clinical Medicine, St. Louis

28:671-796 (March) 1943. **Partial Index**

Lesions in Tissues of Body Following Sulfonamide Therapy. H. J. Schattenberg and W. H. Harris Jr.—p. 671.
Infestation with Strongyloides Stercoralis. M. B. Levin.—p. 680.
Effect of Cinchophen on Bile Formation. A. L. Berman, E. F. Snapp, A. J. Atkinson and A. C. Ivy.—p. 682.
Drug Prophylaxis Against Lethal Effects of Severe Anoxia: IV. Standardized Technic. Influence of Body Weight, Injection of Saline, Muscular Restraint, Rate of Ascent, and Pretreatment with Oxygen or Helium Oxygen in Anoxic Mice. G. A. Emerson and E. J. Van Liere.—p. 689.
Comparative Toxicity of Pentobarbital in Newborn and Adult Rat. B. Etsten, F. A. D. Alexander and H. E. Himwich.—p. 706.
Species of Tribes Mimeae, Neisserieae and Streptococceae Which Confuse Diagnosis of Gonorrhea by Smears. G. G. De Bord.—p. 710.
Effect of Ethyl Alcohol Intoxication on Development of Local Inflammatory Reactions in Rabbits. R. H. Rigdon.—p. 714.
Alcoholic Cirrhosis of Liver: Clinical and Pathologic Study of 356 Fatal Cases Selected from 12,267 Necropsies. J. D. Kirshbaum and N. Shure.—p. 721.
Sex Hormone Assays in Menopause: Their Clinical Significance. B. A. Watson, N. Yolton and L. Rauls.—p. 732.
Note on Blood Guanidine Level in Migraine Subjects. H. D. Palmer, D. B. McNair Scott and K. A. C. Elliott.—p. 735.
Apparent Fructose Content of Human Extracellular Fluid. R. S. Hubbard and E. Holley.—p. 737.
*Sterility Test for Sulfanilamide Powders. M. Landy and Elizabeth J. Oswald.—p. 743.

Sterility Test for Sulfanilamide Powders.—The report of a death from tetanus traced to a contaminated sulfonamide powder makes it evident that there is need for a test to determine their sterility. There seems to be some controversy as to the amount of heat which can be applied without altering the drug to such an extent as to render it useless and, in some cases, actually dangerous. The margin of safety between the amount of heat necessary to kill organisms present and the amount which will yield a product unfit for use is small. It is therefore important to have available a sterility test. The procedure which has been used by Landy and Oswald is as follows: The contents of a shaker package (5 Gm. of sulfanilamide) are transferred aseptically to a flask containing 500 cc. of sterile water. The flask is vigorously shaken for five minutes, allowed to stand for thirty minutes at room temperature and shaken again for five minutes. The undissolved sulfanilamide is allowed to settle and 5 cc. of the supernatant fluid is added to each of two tubes containing 20 cc. of Brewer's medium. The tubes are incubated at 37 C. for a period of seven days and examined for evidence of growth. Brewer's medium contains a sufficient amount of sulfonamide inhibitor to permit growth of three selected test organisms: Staphylococcus aureus, Escherichia coli and Clostridium tetani in the presence of 50 mg. of sulfanilamide. This amount of sulfanilamide is the maximum amount which could be present per tube of Brewer's medium in the execution of the aforementioned sterility test. In order to determine the efficiency of the method in the recovery of a spore bearing pathogen from sulfanilamide powder, samples were artificially contaminated with small numbers of Clostridium tetani. No growth was observed in the sterile sulfanilamide controls, while tubes containing contaminated sulfanilamide powder showed excellent growth of Cl. tetani within forty-eight hours. This is further evidence of the extreme resistance of Cl. tetani spores to high concentrations of sulfanilamide. This procedure is applicable to other sulfonamides as well. It is necessary, however, first to determine the maximum quantity of drug which is inactivated by the sulfonamide inhibitors present in Brewer's medium.

Journal of Nutrition, Philadelphia

25:207-308 (March) 1943. **Partial Index**

Vitamin B Complex Studies in Dogs: Production of Cirrhosis of Liver. P. J. Fouts.—p. 217.
Results of Feeding Rats Thiamine Low Diet of Type Consumed by Human Beings. G. M. Higgins, R. D. Williams and H. L. Mason.—p. 229.
Basal Metabolism of Normal College Women. J. McCrery, Mina Wolf Lamb and Neva Deen Bavousett.—p. 245.
Influence of Lecithin Feeding on Fat and Vitamin A Absorption in Man. D. Adlersberg and H. Sobotka.—p. 255.
Vitamin B Complex of Peeled Wheat Bread. R. R. Sealock and A. H. Livermore.—p. 265.
Nicotinic Acid Content of Common Fruits and Vegetables as Prepared for Human Consumption. W. C. Russell, M. W. Taylor and J. F. Beuk.—p. 275.
Nutritive Adequacy of Certain Low Cost Food Mixtures. Frances Hemphill, Ruth Adele Koenig and Jet Winters.—p. 285.

Medical Annals of District of Columbia, Washington

12:87-130 (March) 1943

Contributions of Medicine to the Nation. F. H. Lahey.—p. 87.
Segmental Dilatation of Anal Ring. J. Horgan.—p. 94.
Eye and Related Functional Disturbances. J. Dessoff.—p. 97.
Modern Approach to Child Guidance. L. M. Dub.—p. 102.
Insight into Psychotic Mechanisms and Emergency Psychotherapy. Frieda Fromm-Reichmann.—p. 107.

New England Journal of Medicine, Boston

228:271-298 (March 4) 1943

Renal Complications of Leukemia. D. Merrill and H. Jackson Jr.—p. 271.
Renal Hypertension: Review of Its Status, Including Report of Case of Hypertension Relieved After Nephrectomy. B. V. White, R. E. Durkee and C. Mirabile.—p. 277.
Mechanism of Heart Failure and Related States. L. B. Ellis.—p. 284.

228:299-326 (March 11) 1943

*Sporadic Infections Caused by Salmonella Suipestifer and Salmonella Oranienburg. B. V. Jager and M. E. Lamb.—p. 299.
*Rheumatoid Arthritis as Cause of Increased Cerebrospinal Fluid Protein: Study of 101 Patients. A. O. Ludwig, C. L. Short and W. Bauer.—p. 306.
Mechanism of Heart Failure and Related States. L. B. Ellis.—p. 311.

228:327-380 (March 18) 1943

Toxic Dusts, Fumes and Gases in Industry. G. E. Morris.—p. 327.
Conditioned Reflex as Treatment for Abnormal Drinking: Its Principle, Technic and Success. J. Thimann.—p. 333.
Varicella Following Exposure to Herpes Zoster. J. Garland.—p. 336.

Salmonella Infections.—Jager and Lamb observed in a period of one year 6 patients with Salmonella suipestifer infection at the Boston City Hospital. Two more patients were subsequently found to be infected with Salmonella oranienburg, a closely related bacterium. In no case was the source of infection determined. Two of the 6 cases of S. suipestifer infection had typhoid-like symptoms. In 1 case anatomic observations suggested that an endocardial thrombus might have been the focus of infection, but this could not be established. Clinical or roentgenologic evidence of pulmonary involvement existed in 5. In 1 case a large single renal calculus caused obstruction and was associated with S. suipestifer infection of the involved kidney. In another case there was a unilateral salpingitis with a localized fibrinous peritonitis from which S. suipestifer was cultured. Fever was present in 5 at the time of admission and developed in another postoperatively. Two patients had chills. Diarrhea occurred once. Relative bradycardia occurred once. There was enlargement of the liver in 3 cases; in 2, however, there was a history of chronic alcoholism. Jaundice occurred in 1. Chemotherapy was employed in 4 cases but did not have a beneficial effect. A moderate anemia was present in 4 cases; in several of them chemotherapy may have been a factor in its production. In 3 cases the initial white cell count was low or normal, whereas in 3 it was elevated. In 4 of the 5 cases in which blood cultures were made the organism was recovered. Urine cultures were positive in only 1 case. Stool cultures were negative in every case, as were also sputum and throat cultures. Cultures of the wounds in the 2 cases with surgical complications gave repeatedly positive results. In 4 instances the patients' serum agglutinated their organisms. S. suipestifer can be separated from other members of the Salmonella group by its selective fermentation reactions and by agglutinations

with specific antiserums. It belongs to the typhoid-paratyphoid organisms. The six strains of S. suipestifer isolated belong to the type Salmonella cholerae-suis, var. kunzendorf, a monophasic organism. Salmonella oranienburg is a rare pathogen. The selective fermentation reactions of this organism are identical with those of Salmonella paratyphi C. If, however, fermentation tests with Stern's glycerin medium and Bitter's rhamnose medium are carried out it is possible to make a differentiation, since S. oranienburg gives positive fermentation reactions on these two mediums, whereas S. paratyphi C yields negative reactions. With stock S. suipestifer serum S. oranienburg gives a somatic (finely granular) type of agglutination. This is in accord with their common somatic antigens. The diphasic S. suipestifer (S. cholerae-suis) serum absorbed with the monophasic strain (S. cholerae-suis var. kunzendorf) failed to agglutinate the two S. oranienburg strains. This is to be expected since the two organisms have distinct flagellar antigens.

Rheumatoid Arthritis as Cause of Increased Protein in Cerebrospinal Fluid.—Ludwig and his associates point out that the neurologic manifestations of rheumatoid arthritis are numerous, variable and at times so striking as to simulate disease of the central or peripheral nervous system. The present investigation concerns the aspects of the cerebrospinal fluid in rheumatoid arthritis. The cerebrospinal fluids from 101 patients with rheumatoid arthritis, 42 having spondylitis with or without peripheral arthritis, and 59 having involvement of the peripheral joints alone, were examined. The only significant abnormalities observed were increased protein contents, abnormal colloidal gold curves or a combination of the two. Nine, or 12 per cent, of the 59 patients with rheumatoid arthritis involving the peripheral joint alone and 16, or 38 per cent, of the 42 patients with spondylitis exhibited such abnormalities. Fifteen of the 16 patients with increased cerebrospinal fluid protein had either spondylitis or symptoms suggesting spinal involvement. This fact points strongly to a relation between an elevation of the spinal fluid protein and the presence of rheumatoid arthritis in the spinal and sacroiliac articulations. Cerebrospinal fluid alterations occurred more frequently in the spondylitis patients with severe pain or sciatica or both and hence presumably with a higher degree of inflammatory activity. Factors probably involved in the production of these abnormalities are alterations in the serum proteins and increased permeability of the meninges from their proximity to inflamed articular tissue. Attention is called to the diagnostic difficulties presented by patients with rheumatoid spondylitis and increased cerebrospinal fluid protein, with particular reference to their differentiation from cases with ruptured intervertebral disks.

Ohio State Medical Journal, Columbus

39:201-308 (March) 1943

Can Foods Supply Our Need for B Complex Vitamins? Martha Koehne, Columbus.—p. 217.
*Clinical Use of Mixtures of Insulins. M. I. Sparks and H. J. John, Cleveland.—p. 226.
Uses of Strophanthus in Heart Disease. E. Podolsky, Camp Butner, N. C.—p. 229.
Hodgkin's Disease Complicated by Amyloidosis and Nephrotic Syndrome: Case Report. R. G. Lehman.—p. 232.
Detection and Control of Defective Vision in Industry. H. W. Reid, Cincinnati.—p. 233.
Mixed Tumors of Palate. R. S. Rosedale, Canton.—p. 235.
Industrial Aspects of Peripheral Vascular Disease. L. N. Atlas, Cleveland.—p. 238.
Treatment of Myasthenia Gravis with Roentgen Ray. C. D. Aring, Cincinnati.—p. 241.
Importance of Sulfur in Nutrition. J. Forman, Columbus.—p. 244.
*Latent Bronchogenic Carcinoma: Case Record Presenting Clinical Problems. H. T. Karsner, Cleveland.—p. 245.
Economic State and Mortality in Appendicitis, from Cleveland Appendicitis Survey. H. R. Hathaway, Lakewood, and R. M. Watkins, Cleveland.—p. 247.

Clinical Use of Mixtures of Insulins.—Sparks and John adequately controlled 140, or 93.5 per cent, of 150 ambulant diabetic patients by a single daily injection of insulin. Of the series 53 per cent received protamine zinc insulin and were controlled by it alone, 38 per cent a mixture of protamine zinc insulin and amorphous insulin and 2.5 per cent crystalline zinc insulin. The remaining 6.5 per cent (10 patients) form a heterogeneous group. The patients who were adequately controlled by protamine zinc insulin either had mild to moderate diabetes and required 30 units or less per day or were those in whom diabetes developed after 40 years of age. For the 47 per cent who cannot be adequately controlled with protamine zinc insulin, who are determined by the taking of their blood sugar after each meal, protamine zinc insulin and amorphous insulin given at one injection has proved satisfactory in 38 per cent of the total. In place of such stock mixtures of fixed proportions of the two insulins the authors at the time of injection first take the amorphous insulin into the syringe, add the proper amount of protamine zinc insulin and make the injection immediately. This order is followed so that no protamine zinc insulin may be introduced into the bottle of amorphous insulin. This manner of mixing the insulins can be varied to meet the needs of each individual as may be necessary from time to time, as proportions necessary for adequate control have varied widely. Most of the patients treated with the mixture had moderately severe diabetes, so that the total dose of insulins was between 40 and 60 units. It was used with advantage for 1 patient receiving a total dose of only 15 units, and at the other extreme were 2 patients given 70 to 80 units and 90 units in all to another 1. The juvenile diabetic patients were the ones who benefited most from the mixtures even when the total dose was small. There were no patients who could not accomplish the mixing of the two insulins.

Oklahoma State Medical Assn. Jour., Oklahoma City

36:93-138 (March) 1943

Aviation Medicine. W. M. Scott.—p. 93.
Industrial Dermatoses. E. S. Lain.—p. 96.
Five Year Report of University of Oklahoma Student Health Service. W. A. Fowler.—p. 98.
Management of Peptic Ulcer. A. W. White.—p. 104.

Public Health Reports, Washington, D. C.

58:377-416 (March 5) 1943

Coliform Confirmation from Raw and Chlorinated Waters with Brilliant Green Bile Lactose Broth. Elsie Wattie.—p. 377.
Parental and Familial Factors in Acceptance of Diphtheria and Smallpox Immunization. L. Breslow, Pearl R. Shalit and G. W. Anderson.—p. 384.
*Experiments in Cooking of Garbage for Destruction of Trichinae in Pork Scraps. W. H. Wright and J. Bozicevich.—p. 396.

Cooking of Garbage.—To determine the minimal time required for cooking garbage to destroy trichinae in pork scraps which it contained, Wright and Bozicevich introduced pieces of trichinous pork into garbage cooked by steam in open tanks. The pieces of pork varied in dimension from 1 by 1 by 1 inch to 6 by 6 by 4½ inches and in weight between 20 Gm. (0.04 pound) and 2,297 Gm. (5.06 pounds). The samples were placed in the garbage while it was still cold before the steam was turned into the tank and held in the tank for various periods after the garbage came to a boil. The internal temperature of each piece of pork was ascertained by means of a meat thermometer inserted into the center of the sample. The data from the experiments warrant the conclusion that the boiling of garbage for thirty minutes in an open container will effect the destruction of trichina larvae in pieces of pork up to 3 inches in thickness and probably in pieces of pork of greater thickness provided the garbage is allowed to cool gradually. Such a procedure would seem to constitute an effective measure for preventing the transmission of trichina infection to swine maintained on garbage and thus aid in the control of swine trichinosis primarily and human trichinosis secondarily.

Rhode Island Medical Journal, Providence

26:33-50 (March) 1943

Rhode Island Cash Sickness Compensation Act. H. C. Pitts.—p. 33.
Treatment of Pneumonia with Large Immediate Doses of Sulfonamide Without Complications. J. F. Kenney.—p. 37.

South Carolina Medical Assn. Journal, Florence

39:53-78 (March) 1943

Half Century of Practice. R. Wilson.—p. 53.
Roentgen Ray Aspects of Sarcomas of Soft Tissues. F. B. Mandeville.—p. 59.
Post-Traumatic Painful Osteoporosis (Sudeck's Atrophy). H. G. Smithy.—p. 63.

Southern Medical Journal, Birmingham, Ala.

36:167-246 (March) 1943

*Use of Intrapelvic Coagulum in Pyelolithotomy: Preliminary Report. J. E. Dees, Durham, N. C.—p. 167.
Bronchogenic Carcinoma: Report of Case Diagnosed from Fixed Frozen Sections of Sediment from Pleural Exudate. D. R. Venable, Columbus, Ga.—p. 175.
Ankylosing Spondylarthritis: Marie-Strümpell Arthritis: Roentgen and Orthopedic Therapy. L. D. Baker, Durham, N. C.—p. 180.
Practical Solution of Some Common Anorectal Problems. N. D. Smith, Rochester, Minn.—p. 184.
Primary Dysmenorrhea. W. Bickers, Richmond, Va.—p. 192.
Some Observations on Use of Nicotinic Acid Amide as Adjunct in Obstetric Analgesia: Preliminary Report. J. R. Perdue, Miami, Fla. —p. 198.
Treatment of Congenital Syphilis with Acetarsone (Stovarsol): Result of Ten Year Study. J. M. Arena, Durham, N. C.—p. 201.
Civilian Medical Care in Total War. T. Parran, Washington, D. C.—p. 204.
Personnel Problems of Medical Department. G. H. Teasley, Washington, D. C.—p. 209.
*Acute Hemolytic Anemia in Fertilizer Workers: New Industrial Hazard. R. Wilson Jr. and G. H. Mangun, Charleston, S. C.—p. 212.
*Causes for Unsuccessful Sulfonamide Therapy of Pneumonia. H. F. Flippin, Philadelphia.—p. 219.
Physical Therapy Measures in Treatment of Peripheral Vascular Diseases. E. J. C. Hildenbrand, Washington, D. C.—p. 224.
Ocular Motility Then and Now. W. T. Davis, Washington, D. C.—p. 228.
Clinical Significance of Serum Proteins. B. M. Kagan, Richmond, Va. —p. 234.
Intestinal Parasites and Skin Diseases. M. T. Van Studdiford, New Orleans.—p. 238.

Use of Intrapelvic Coagulum in Pyelolithotomy.—Dees outlines a new approach to the problem of the surgical removal of renal calculi. The incidence of recurrence after pyelolithotomy is too high, and this, he believes, is due to the incomplete removal of stones at operation. The new technic promises complete removal of all free renal calculi regardless of their size or position within the renal pelvis. A coagulable substance (clotting globulin) is injected into the renal pelvis at open operation. The resulting clot completely fills the pelvis and forms a perfect mold of its ramifications. Within this coagulum are incorporated all free renal calculi. The coagulum, together with all stones enmeshed within it, may then be removed through a pyelotomy incision. The technic has been used in 5 cases of nephrolithiasis without apparent ill effect. Although the method is still in an experimental stage, calculi that probably would not have been removed by pyelolithotomy as usually performed have been removed by this means.

Acute Hemolytic Anemia in Fertilizer Workers.—Within the last three years Wilson and Mangun encountered 3 cases of acute hemolytic anemia with hemoglobinuria which occurred under similar circumstances in the fertilizer industry. Subsequent investigation clearly points to a metallic poisoning, an industrial hazard previously unsuspected in the fertilizer industry. An active hemolysin was isolated from the blood of 1 of the patients and from the urine of another. The authors believe that adequate ventilation of ships carrying fish scrap to fertilizer mills would prevent the occurrence of this industrial accident.

Unsuccessful Sulfonamide Therapy of Pneumonia.—Flippin states that the following should be thought of as possible causes when sulfonamide therapy is not successful: (1) pneumonia not due to sulfonamide affected organisms, (2) improper selection of a drug, (3) belated chemotherapy, (4) inadequate chemotherapy, (5) drug toxicity, (6) presence of antisulfonamide substances and (7) failure to employ other established therapeutic measures.

Southwestern Medicine, Phoenix, Ariz.

27:1-32 (Jan.) 1943

General Considerations in Treatment of Malunited and Nonunited Fractures. R. G. Packard, Denver.—p. 2.
Skin Diseases Under War Conditions. G. P. Lingenfelter, Denver.—p. 9.

27:33-60 (Feb.) 1943

Emergency Treatment of Abdominal Traumas. E. P. Palmer, Phoenix, Ariz.—p. 34.
Nonobstructive Jaundice. V. G. Presson, Tucson, Ariz.—p. 41.

Surgery, Gynecology and Obstetrics, Chicago

76:257-384 (March) 1943

*Multiple Gastric Polyposis: Supplementary Report of 41 Cases, Including 3 New Personal Cases. F. L. Pearl and H. Brunn, San Francisco. —p. 257.
Development of Vertebral Column as Related to Certain Congenital and Pathologic Changes. J. L. Ehrenhaft, Iowa City.—p. 282.
*Mesonephroma or Teratoid Adenocystoma of Ovary. W. B. Stromme and H. F. Traut, New York.—p. 293.
Experimental Observations on Reconstructive Intrathoracic Esophagogastric Anastomosis Following Resection of Esophagus for Carcinoma. E. B. Kay, Ann Arbor, Mich.—p. 300.
Granular Cell Myoblastoma. R. C. Horn Jr. and A. P. Stout, New York.—p. 315.
Hemorrhagic Infarct of Testicle in Newborn. J. T. MacLean, New Haven, Conn.—p. 319.
Immediate Effects of 3,'3-Methylene-Bis-(4-Hydroxycoumarin) on Experimental Animals. K. G. Wakim, K. K. Chen and W. D. Gatch, Indianapoiis.—p. 323.
Significance of Extent of Axillary Metastases in Carcinoma of Female Breast. S. Warren and V. N. Tompkins, Boston.—p. 327.
"Shock" and Anesthesia in Transthoracic Gastric Surgery. H. K. Beecher, Boston.—p. 331.
Modification of Callander Amputation. M. Grodinsky, Omaha.—p. 337.
Shock Cart. J. Scudder, New York.—p. 341.
Ambulatory Method of Treatment for Intertrochanteric Fractures of Femur. W. B. McKibbin, Seattle.—p. 343.
Arthroplasty of Hip for Osteoarthritis Utilizing Foreign Body Cups of Plastic. P. H. Harmon, Sayre, Pa.—p. 347.
Plasma Clot and Silk Suture of Nerves: I. Experimental Study of Comparative Tissue Reaction. I. M. Tarlov and B. Benjamin. Brooklyn. —p. 366.

Multiple Gastric Polyposis.—Since 1926, when they collected 84 cases, Pearl and Brunn have collected 41 cases of multiple polyps of the stomach from the literature and to this they add 3 proved cases of their own. Multiple gastric polyposis may be congenital (neoplastic) or inflammatory (hyperplastic). The two types may often be differentiated on gross examination alone. Microscopically in neoplastic polyps the muscularis mucosae enters the tumor for a variable distance and usually becomes fragmented or split, with the submucosa entering the tumor for a variable extent. In the hyperplastic type the muscularis mucosae is intact and forms a delineating membrane; the submucosa plays no part in the formation of the tumor. Borderline cases may be difficult to classify. The symptoms are not characteristic; epigastric pain and tenderness were most frequent. Bleeding in the vomitus, stool or gastric content was found in more than 50 per cent of the patients. In pedunculated tumors and those near the pylorus, separation of polyps or pyloric obstruction is more likely. Some patients have had symptoms for more than twenty years. Physical changes may be indefinite or entirely lacking. Diagnosis may be difficult. The roentgenogram may fail to differentiate multiple polyposis from chronic hypertrophic gastritis, retained food, bezoar or sarcoma. The correct diagnosis is made most often at operation. Roentgenology and gastroscopy are complementary; their combined use will greatly enhance diagnostic acumen. Free hydrochloric acid was absent from the fasting gastric content of almost every patient. Careful search should be made in the gastric content for particles of tumor which may establish the diagnosis. In the previous series a malignant alteration was observed in 12 per cent and in the present series in 19 per cent. This alone argues for radical surgical removal of the area bearing the tumor. The results are greatly superior in gastrectomized subjects.

Mesonephroma or Teratoid Adenocystoma of Ovary.—Stromme and Traut report 10 cases which fulfil the criteria outlined by Schiller for mesonephroma or teratoid adenocystoma of the ovary. In their series they have usually been at a loss to demonstrate structures which resembled the architectural arrangement of wolffian glomeruli. The tumors abounded in acini into which papillary tufts of epithelium projected with or without a supporting connective tissue stalk; but any one of several well recognized ovarian or uterine tumors could be named "mesonephric" if the demonstration of this arrangement of cells should be taken as the criteria of such origin. They are skeptical of Schiller's explanation of the etiology of this group of tumors and prefer not to accept his term of mesonephroma ovarii. They are convinced that the tumors are not

rare, that they form a morphologically distinct group of ovarian tumors with a characteristic life history and that for this reason they should have a distinctive name (teratoid adenocystoma). These tumors are not merely a hydropic form of serous cystadenoma, for they almost invariably produce a mucin-like substance which reacts to the usual stains for mucin. While the mucin stain is nonspecific, the fact that it is positive differentiates it from the serous group in which it is not positive. This suggests a probable relationship to wolffian or teratoid antecedents. These neoplasms are different morphologically and in their mode of growth from the pseudomucinous cystadenomas. Whether benign or malignant, they are essentially solid tumors which tend to become cystic only as they degenerate.

Tennessee State Medical Assn. Journal, Nashville

36:89-126 (March) 1943

Diets in Dermatologic Conditions. R. N. Buchanan Jr., H. King and C. M. Hamilton.—p. 89.
Hyperparathyroidism: Symposium. N. S. Shofner, E. H. Barksdale and E. M. Regen.—p. 97.

United States Naval Med. Bulletin, Washington, D. C.

41:299-612 (March) 1943

Observations on Treatment of Battle Wounds Aboard Hospital Ship. L. K. Ferguson, R. B. Brown, J. T. Nicholson and H. E. Stedman.—p. 299.
Experiences of Surgical Service of United States Naval Hospital, Auckland, New Zealand, with Casualities from Initial Solomon Islands Engagement. G. Crile Jr.—p. 306.
Os Calcis Fractures in Naval Warfare. W. L. Rogers.—p. 324.
Treatment of Fractures of Tibia on Board Ship. R. S. Silvis.—p. 331.
*Experimental Study of Underwater Concussion. F. C. Greaves, R. H. Draeger, O. A. Brines, J. S. Shaver and E. L. Corey.—p. 339.
*Experimental Immersion Blast Injury: Preliminary Report. M. T. Friedell and A. M. Ecklund.—p. 353.
Preliminary Appended Report on Causation of Blast Injury. M. T. Friedell and R. Burke.—p. 363.
Fifteen Days Adrift on a Raft: Clinical Evaluation of Five Survivors. H. S. Good.—p. 367.
*Night Blindness, Improvement with Vitamin D.: Including Experimental Production of Retinitis Pigmentosa and Its Treatment in Humans with Vitamin D. A. A. Knapp.—p. 373.
Administration of Helium and Oxygen Mixtures in Treatment of Disabling Ear Symptoms Caused by Changes in Atmospheric Pressure. I. J. Thorne.—p. 378.
Lead Hazard Occurring During Repair of a Burned Ship. W. E. Fleischer and F. J. Viles.—p. 386.
Ruptured Intervertebral Disks. D. H. Werden.—p. 388.
Intervertebral Disk Injury During Spinal Puncture. J. P. Stump and S. A. Narins.—p. 400.
Muscle Hernia of Leg: Study of 21 Cases and 38 Hernias. P. E. McMaster.—p. 404.
New Aspect of Muscle Reinnervation: Preliminary Report. H. E. Billig Jr. and A. van Harreveld.—p. 410.
Intramuscular Pressure: VI. Physiology of Venopressor Mechanism and Importance of Maintaining Intramuscular Pressure in Treatment of Peripheral Collapse of Shock and Shocklike States. L. Gunther.—p. 414.
Distribution of Influenzal Antibodies Among Vaccinated and Unvaccinated Naval Personnel. Personnel of Naval Laboratory Research Unit No. 1. A. P. Krueger, M. C., Officer in Charge.—p. 426.
Experiences with Fever Therapy at Philadelphia Naval Hospital. W. H. H. Turville and F. Fetter.—p. 431.
Examination of Heart in Navy Applicants. H. E. Ungerleider, T. F. Duhigg and R. S. Gubner.—p. 441.
Functional and Simulated Deafness. F. Harbert.—p. 458.
Psychometric Procedures in Detection of Neuropsychiatrically Unfit. W. A. Hunt, C. L. Wittson, H. I. Harris, P. Solomon and M. M. Jackson.—p. 471.
Inapt Naval Recruit. M. Gerstle Jr., R. L. Wagner and T. Lodge.—p. 480.

Experimental Study of Underwater Concussion.—Greaves and his associates present data on the effects of underwater concussion on rats, guinea pigs and goats. The amount of explosive necessary was 5 Gm. of tetryl for adult white rats and 6 Gm. for adult guinea pigs. Death immediately following the blast was due to pulmonary damage. The respiratory function of the lungs was immediately and totally destroyed. The animals were not rendered unconscious by the blast but continued their swimming motions for several seconds. Cyanosis appeared and the nose and mouth exuded a bloody, frothy liquid. Occasionally bloody froth was present about the nares, and the respirations were shallow and rapid. Some of these animals died after a few hours. Those that survived regained their normal actions within a short time and demonstrated no further ill effects. The lesions produced under comparable conditions in all animals were surprisingly uniform. Pulmonary lesions were always found if any injuries resulted from the blast, but intestinal lesions were not constant. None of the other organs or tissues in the thorax or abdomen showed injury. No cerebral or central nervous system lesions were encountered. A few fractured extremities resulted from explosions of high order. The determining factor in the production of injuries by blast is the presence of air or gas in the tissues; the more air or gas that is present, the greater is the injury. When a compression wave greater than 500 pounds per square inch strikes the body it is transmitted through the tissues and, on striking the air within the lungs or the gas bubble within the gastrointestinal tract, it breaks through into the gaseous medium with a shredding effect, tending to "blow off" the surface of the tissues exactly as it blows off the surface of water when it breaks through into air. Gastrointestinal tissue, as such, is resistant to the effects of the compression wave, but if gas is present in the lumen the wave will shred as it breaks through. If the gas is displaced without compression, the only lesion will be a hemorrhagic area of the wall, marking the site of the shredding. Perforation will occur when the gas bubble is trapped. If the wall has been sufficiently weakened by the shredding injury it will break down before the reexpanding bubble and a "blow out" perforation will result. Injuries were minimized when the animals were protected about the trunk by a lifejacket covering of foam rubber or kapok that was not waterlogged. Animals completely protected by dry kapok received only minimal lesions when subjected to two and a half times the lethal charge. The protective action of kapok and foam rubber is due to their ability to disperse the compression wave sufficiently to prevent or to minimize its destructive effect. Any protective device worn by men should be of the sleeveless coat type. The kapok should be enclosed in muslin bags, which in turn are encased in a pliable, waterproof material. It should have a padded collar attached that fits snugly about the neck when tied in front. The coat should be slightly double breasted and the skirt should reach to the greater trochanters of the femur. The jacket should have a padded "tail" to be drawn and tied between the legs to protect the scrotum and testicles. The thickness of the pads should be the same as those used in the standard Navy life jacket.

Experimental Immersion Blast Injury.—Friedell and Ecklund determined in animals the types of abdominal and other injuries that immersion blast causes. Two types of abdominal lesions observed were a hemorrhagic condition of the muscularis portion of the intestinal wall and perforations and larger tears in the intestinal wall. The lesions in the chest were symmetrical hemorrhagic areas on the surfaces of the lung nearest to the explosive source; thus the dependent edges of the middle lobes were usually involved and the posterior surface when the back was turned toward the blast. The severity of thoracic lesions depended on the distance of the explosion, the size of the charge and the protection afforded the thorax. Thoracic involvement usually accounted for the fatal outcome. Abdominal lesions were not produced except when the pulmonary damage was so severe that death ensued in five to ten minutes after the explosion. All such animals were fairly lively for two to three minutes; air hunger then ensued, the eyes began to bulge, and minor convulsions followed. With a chamber devised to minimize the effects on the thorax the lungs were protected so that previously fatal explosive conditions were no longer lethal. However, abdominal lesions were present and as the force of the charge grew greater the hemorrhagic lesions gave way to perforations. When the force of the charge was overwhelming, perforations were frequent. The effect of charges was apparently somewhat minimized when the animal was placed on its back. In the patients observed by the authors after the battle of Midway, they felt that possibly life jackets prevented such severe injury to the lungs as to cause death and that the unprotected abdomen bore the brunt of the explosion. This seems to

be borne out by experiments in which the previous lethal condition was repeated, except that the chest was protected. Perforations then occurred in the intestinal tract. At necropsy the changes in the chest were not severe enough to explain the lethal outcome. Peritonitis appeared in 1 animal which survived the pulmonary blast injury for twenty-three hours, thus duplicating the picture encountered in some instances of human immersion blast injury. The authors suggest that the life jackets be made to cover the abdomen.

Night Blindness: Improvement with Vitamin D.—Of all ocular conditions giving rise to night blindness, Knapp states that retinitis pigmentosa stands in the forefront. Fortunately it is a rare disease. Night blindness may be caused by a deficiency of at least two vitamins, A and D. Another condition often complicated by night blindness is myopia. Among 93 patients with various degrees of myopia, 64 complained of poor vision in reduced illumination. As routine treatment these 64 were given 60 drops of viosterol and at least 1 Gm. of available calcium. With some the vitamin D dose was increased to 200 drops daily. After six to twenty-seven months of observation, during which time the patients were checked at least once a month, there was an actual reduction of the myopia in 20. Casts of the anterior segment of many eyes and in 1 instance a fundus photograph before and after treatment proved beyond doubt that the eyeball in both its anterior and posterior segments may shrink following treatment with vitamin D and calcium. Of the 64 persons suffering from poor vision at night, 48 noticed distinct improvement in respect to their nyctalopia in no way dependent on their myopic status. Several weeks usually elapsed before definite clinical improvement was seen. The majority of those patients whose myopia was reduced spoke of their greater ability to see after nightfall and others had better vision at night when their myopia was stationary or even in the presence of an increase of their nearsightedness. In 16 the condition apparently remained the same. During the treatment of both the patients with retinitis pigmentosa and the myopia toxicity was watched for. Seldom did a toxic sign develop—a mild rash, nausea, vomiting or constipation—but these symptoms disappeared soon after the medication was stopped or reduced.

War Medicine, Chicago

3:223-336 (March) 1943

*Primary Atypical Pneumonia, Etiology Unknown. J. H. Dingle, T. J. Abernethy, G. F. Badger, G. J. Buddingh, A. E. Feller, A. D. Langmuir, J. M. Ruegsegger and W. B. Wood Jr.—p. 223.
*Primary Atypical Pneumonia and Malaria. E. T. Campbell.—p. 249.
Effect of Exposure to Anoxia of Moderate Degree on Excretion of Ascorbic Acid in Urine: Preliminary Report. L. R. Krasno, A. C. Ivy, A. J. Atkinson and W. B. Johnson.—p. 256.
Neuroses in Soldiers: Use of Sodium Amytal as Aid to Psychotherapy. L. L. Altman.—p. 267.
Gastroscopy and Use of Gastroscope in Military Services. J. T. Howard.—p. 274.
Allergic Rhinitis and Asthma in Hawaii. C. T. Young, W. R. Cook and I. A. Kawasaki.—p. 282.
Vascular Surgery in War. Géza de Takáts.—p. 291.
Effects of Increased Flying Time on Aviation Instructors. J. E. Dougherty.—p. 297.
Intravenous Migration of Metallic Foreign Body. J. A. Siegling.—p. 303.

Primary Atypical Pneumonia.—Dingle and his associates, members of the Commission for the Investigation of Atypical Pneumonia and Other Respiratory Diseases at Camp Claiborne, Louisiana, report that clinically, epidemiologically and etiologically atypical pneumonia at Camp Claiborne was in general agreement with the observations of other investigators. The infection occurred in epidemic and in endemic form. The causation has not been ascertained. The most characteristic clinical feature of the syndrome was the late development of physical signs in the lungs in contrast to the comparatively extensive x-ray evidence of the lesions. This observation emphasizes the need for early and repeated x-ray examination and for frequent physical examination during the course of the acute illness to determine the true incidence of the disease. The clinical and epidemiologic data support the possible relation between atypical pneumonia and certain of the minor acute illnesses of the respiratory tract without demonstrable pulmonary lesions observed by Gallagher and by Reimann and his associates. The agent or agents, undetermined as yet, causing atypical pneumonia may produce a constitutional reaction of varying degrees of severity both with and without obvious pulmonary involvement. At present there is no specific measure for determining the proportion of the minor illnesses which are of the same causation. The factors determining the incidence and the conditions incident to the epidemic remain obscure. The existence of a nonhuman reservoir of infection was not discovered, but neither was its possibility completely excluded. Its widespread occurrence at the camp and its scarcity among the population suggested that susceptibility to the pneumonic form was low. Its epidemiology is consistent with the hypothesis that the disease is communicable from person to person and that inapparent instances act as the effective spreading source of the infection. No evidence was obtained that predisposing factors, such as chilling, fatigue or previous infections of the upper respiratory tract, were important in the pathogenesis of the disease. If an appreciable number of minor illnesses are of the same origin, as some evidence now indicates, the infection must be considered an important disease of the respiratory tract which causes disability not only in the armed forces but in the civilian population.

Primary Atypical Pneumonia and Malaria.—Campbell reports 50 cases of primary atypical pneumonia in Panama and the Canal Zone complicated by concurrent malaria. In a locality in which malaria is endemic, cases of primary atypical pneumonia must be considered with the possibility of a dual infection in mind. Such cases can be separated into two groups: those admitted to the hospital with the pneumonia, in many of which subsequently a blood smear is positive for malarial parasites, and those admitted for malaria in which atypical pneumonia develops later on. In the first group the onset is usually gradual and the patient complains of having felt bad for several days. There are a nonproductive cough, vague pains in the chest, sore throat and fever. Although uncomfortable, he is not prostrated. His fever is usually intermittent, and the temperature varies between 100 and 102 F.; occasionally it may be higher. Defervescence by lysis usually begins about the fifth to the eighth day of illness. Moist rales can sometimes be heard at the onset and can usually be heard at the height of the pulmonary involvement. Approximately 68 per cent of the patients of this group had blood smears positive for malaria parasites. This "secondary infection" seems to have little or no effect on the eventual recovery except that hospitalization to eradicate the parasite is longer than is usually necessary for the pulmonary infection alone. The two diseases run independent concurrent courses. Treatment of the pneumonitis is symptomatic. Codeine is often necessary to control the cough. When malaria is present it is treated with quinine or atabrine in the routine manner. There have been no deaths. The malaria of the patients of the second group responds well and is controlled rapidly, but during convalescence a nonproductive cough may develop with pain and discomfort in the chest and an elevation of temperature. This usually may occur over several days but may be ushered in suddenly with a chill. Examination may or may not reveal positive physical signs in the chest. The diagnosis is made by x-ray examination. The complication develops in only a small percentage of the total cases of malaria, but it is by no means uncommon and must be borne in mind. Treatment is symptomatic, and antimalaria measures are continued as usual.

Wisconsin Medical Journal, Madison

42:273-372 (March) 1943

Dysphagia: Review of Clinical, Roentgen Ray and Esophagoscopic Aspects of 150 Cases. G. D. Straus, Milwaukee.—p. 293.
Pulmonary Nodular Infiltrations in Influenza Resembling Early Tuberculosis. B. H. Schlomovitz, Milwaukee.—p. 296.
Recent Advances in Use of Human Serum and Plasma. M. Hardgrove, Milwaukee.—p. 298.
Sulfadiazine in Chronic Infections. W. H. Oatway Jr., Tucson, Ariz.; J. B. Bingham Jr. and J. L. Sims, Madison.—p. 302.
Some Psychologic Aspects of Medical Disorders. D. A. R. Morrison, Milwaukee.—p. 306.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Lancet, London

1:355-386 (March 20) 1943

*Early Diagnosis of Wound Infection: with Special Reference to Gas Gangrene. D. McClean, H. J. Rogers and B. W. Williams, with a technical section by C. W. Hale.—p. 355.
*Prefrontal Leukotomy: Further Contribution. G. W. T. H. Fleming and W. McKissock.—p. 361.
*Results of Prefrontal Leukotomy. E. L. Hutton.—p. 362.
Pulmonary Tuberculosis: As Discovered by Mass Radiography. H. J. Trenchard.—p. 366.
Primary Pneumococcic Peritonitis: 2 Cases with Recovery. I. Matheson.—p. 367.

Early Diagnosis of Gas Gangrene.—McClean and his collaborators studied the possibility of detecting the presence of actively proliferating pathogenic organisms at a stage when the infection cannot be recognized by clinical or ordinary bacteriologic examination. Organisms of the gas gangrene group, staphylococci, streptococci and pneumococci produce, in addition to their recognized toxins, substances which cause an immediate increase in the permeability of the connective tissues. These diffusing or spreading factors are closely associated, if not identical, with a group of enzymes that hydrolyze the mucopolysaccharide known as hyaluronic acid, which is widely distributed in the connective tissue. The enzymes are therefore called "hyaluronidases." The presence of hyaluronic acid causes the infecting organisms to produce an increased amount of the enzyme, and a vicious circle is set up which promotes the extension of the infection. It was of interest to determine how early in an infection these bacterial enzymes could be detected in the edema fluid or wound exudate, the distribution of these substances in the body fluids and their correlation with the progress of infection. If these enzymes could be detected at an early stage, the knowledge might provide a rapid means of early diagnosis, a more vigorous and objective antitoxin therapy and less extensive operative excision with a consequent reduction in both mortality and mutilation. Although experimental evidence indicates that hyaluronidase and lecithinase can be detected in the edema fluid as soon as there is sufficient to collect for examination, the authors do not know how early these enzymes will appear in the infected wound or how the time of their appearance will be correlated with clinical signs of infection. Animal experiments suggest that this is likely to be early in the infective process and before local changes are diagnostic. It remains to be proved whether the fact that the infecting organisms are proliferating in sufficient numbers to produce these enzymes in the tissues is evidence of active wound infection or whether this proliferation can occur when the organisms are present only as apparently harmless contaminants. The authors believe that the methods can be applied to the examination of clinical material. They suggest that a negative result from the examination of a wound exudate should not induce a false sense of security and should not be allowed to contraindicate the routine administration of antitoxin or sulfonamide compounds or both.

Prefrontal Leukotomy.—Fleming and McKissock report the results of prefrontal leukotomy performed on 15 additional patients. Of this number 12 were melancholic, 1 of the remaining 3 obsessional, 1 schizophrenic and 1 manic-depressive. Of the 12 patients with melancholia, 7 have made a complete recovery and 1 has shown considerable improvement but the other 4 so far have shown little improvement. The obsessional patient has completely recovered, but the schizophrenic remains much the same although quieter, while the manic-depressive is improved. Two patients with involutional melancholia were not doing well but suddenly began to improve after being spoken sharply to and told that they must "pull themselves together to go home." One patient, with schizophrenia, has had a single seizure since the operation, and 1 had a series of thirteen seizures, but as her blood pressure was 240 mm. of mercury it is possible that the seizures were of hypertensive origin. Several of the patients have found complete "peace of mind" after the operation, and these were patients who for years had been suffering torment. The operative risk seems small. There have been no deaths in 15 cases. Of the involutional melancholic, 2 had had fifteen electric shocks followed by a prolonged shock of twenty seconds with no clinical improvement. One of these has shown no improvement after leukotomy, the other a moderate degree of benefit. Some of the patients had urinary incontinence after the operation. The impression was gained that the more severely mentally affected the patient is before the prefrontal leukotomy, the more likely he is to have urinary incontinence after it.

Results of Prefrontal Leukotomy.—Hutton reports the results obtained on 50 patients subjected to prefrontal leukotomy. Of the two deaths (4 per cent mortality) only one could be attributed directly to the operation. It was due to cerebral hemorrhage caused by accidental section of the anterior cerebral artery. In most of the cases the postoperative course has been uneventful; enuresis, usually transitory, has occurred in several cases, but other neurologic complications have been rare. In view of the radical nature of the treatment, it has been advocated only in cases in which the prognosis was poor and in which other methods had been tried and had failed. Considering the chronicity of many of the cases the results are extremely encouraging. Not a single patient is recorded as being worse after the treatment than before; and even the patient with the least satisfactory results is usually found to be quieter, less impulsive and more amenable. The treatment has been tried in varying forms of mental disorder and improvement has been obtained in every type. Results seem to be best when there is a very strong negatively toned emotional factor, such as apprehension, anxiety, inadequacy or guilt. The least successful results have been obtained in cases of dementia simplex characterized by emotional apathy and general mental reduction. The rehabilitation after the operation is of the utmost importance; personal attention and encouragement are essential, and where these are lacking the results tend to be disappointing. The greatest success is obtained with patients of good intelligence whose relatives have sufficient interest, affection and understanding to help in this process of reeducation. Prefrontal leukotomy converted many patients suffering from supposedly hopeless mental disorders into contented and useful members of society.

Transactions Royal Soc. Trop. Med. and Hyg., London

36:253-318 (March) 1943

*Dysentery in Middle East with Special Reference to Sulfaguanidine Treatment. N. H. Fairley and J. S. K. Boyd.—p. 253.
Child Mortality in Lagos, Nigeria. E. C. Smith.—p. 287.
Bactericidal Effect of Tin and Its Application to Treatment of Typhoid Fever. R. Reitler and K. Marberg.—p. 305.

Dysentery in Middle East with Reference to Sulfaguanidine.—Fairley and Boyd state that in the Middle East dysentery is mainly fly borne. Bacilli causing dysentery included the six Flexner and three Boyd strains, as well as Bacterium dysenteriae of Shiga, Schmitz and Sonne types. Sigmoidoscopy is valuable in the diagnosis of subacute and chronic dysentery, in the control of treatment and in detection of the carrier. Material collected by direct swabbing of the ulcers may yield positive findings when previous culture studies of the stools were negative. Therapeutic results proved disappointing with polyvalent antidysenteric serum. The refined antidysenteric Shiga serum prepared by partial peptonization produced clinical improvement. The benefit was too often only temporary. The serum was given intravenously in a dose of 5 to 10 cc. (100,000 to 200,000 international units); serum sickness or other untoward reactions were not observed. The series treated with sulfaguanidine comprised over 500 cases. The analysis has been confined to 96 Shiga cases. The conclusion reached was that sulfaguanidine constitutes a specific cure for this disease. It exerts a bacteriostatic or bactericidal action which rapidly leads to a decrease in toxemia and to cessation of damage to the intestine. In subacute and chronic cases ulcers which had been resistant to other treatment were observed with the sigmoidoscope to heal rapidly. The drug is relatively nontoxic and never led to hematuria or renal blockage. The action of sulfaguanidine, which is bacteriostatic, and antidysenteric Shiga serum, which is antitoxic, are mutually complementary. The most important indication for the administration of Shiga antitoxin is in fulminating or severely toxic cases of Shiga dysentery.

Confinia Neurologica, Basel

4:309-368 (No. 6) 1942. **Partial Index**

Relations Between Benign Lymphocytic Meningitis and Poliomyelitis. P. Gautier and G. Henny.—p. 309.
Encephalitis Following Inclusion Conjunctivitis. F. Bamatter.—p. 314.
Disturbances of Equilibrium in Thalamolenticular Syndrome. H. Brunnschweiler.—p. 322.
Meningiomas. A. Jentzer.—p. 327.
Traumatic Leptomeningopathy. G. de Morsier.—p. 333.
*Sjögren's Syndrome: Its Relation to Plummer-Vinson Syndrome and Riboflavin Avitaminosis. A. Franceschetti.—p. 343.
Simultaneous Variations in Retinal and General Arterial Pressure During Caloric Vestibular Stimulation. E. B. Streiff, A. Montandon and M. Monnier.—p. 347.
Electroencephalography by Direct Registration. M. Monnier.—p. 350.

Sjögren's and Plummer-Vinson's Syndromes and Riboflavin Avitaminosis.—Sjögren called attention to the fact that the filiform keratitis described by Leber in 1882 is not merely an ocular manifestation but part of a general syndrome characterized by extreme dryness of the mucous membranes. Franceschetti, as well as Steinmann, found normal vitamin A values in patients with Sjögren's syndrome. Franceschetti points out that Sjögren's syndrome resembles the Plummer-Vinson syndrome. Meulengracht and Bichel detected a close resemblance between the Plummer-Vinson syndrome and ariboflavinosis. If the Plummer-Vinson syndrome is due to riboflavin avitaminosis, then the same can be said of the syndrome of Sjögren, especially since the latter presents the ocular sign suggestive of ariboflavinosis, and the former does not. Franceschetti found a porphyrinuria in 2 patients with Sjögren's syndrome. He feels, however, that it is not always safe to base the cause of a disorder on analogies. The increased sedimentation rate and the frequency of joint symptoms does not permit the exclusion of an infectious factor. The author injected daily into 2 patients with Sjögren's syndrome, for a week, 2 cc. of a preparation containing thiamine, riboflavin, nicotinic acid, adermin (B_6) and pantothenic acid. One of the patients was favorably influenced so far as the condition of the buccal mucous membrane was concerned; in the other only the rhagades were influenced. He concludes that although the role of riboflavin in the syndromes of Plummer-Vinson and of Sjögren is far from clarified, one is justified in pursuing investigation along these lines.

Schweizerische medizinische Wochenschrift, Basel

72:1113-1140 (Oct. 10) 1942

*Influenza-like Epidemic with High Incidence of Pulmonary Infiltrates (Virus Pneumonia) in an Infantry Battalion. E. Haemig and W. Heyden.—p. 1113.
Prophylaxis of Hypoprothrombinemia in the Newborn with Vitamin K. O. Ballon.—p. 1119.
Iron Medication with Combination of Iron and Ascorbic Acid. L. Feil.—p. 1121.
*Meynet's Nodes, Infrequent Manifestation of Rheumatic Disease. R. Junet and P. Alphonse.—p. 1125.
Otologic Examinations of Soldiers Operating Infantry Cannons. Lt. Vetter.—p. 1127.
Lionardo da Vinci as Anatomist. O. Bucher.—p. 1130.

Epidemic of Virus Pneumonia.—Haemig and Heyden report an influenza-like epidemic which broke out in an infantry battalion at the end of February 1942. Of 105 men who contracted the disorder, 59 had roentgenologically demonstrable pulmonary infiltrates. The onset was acute with headache, dry cough, high, intermittent temperature and profuse sweats but without dyspnea. There was a discrepancy between the slight or entirely absent auscultatory signs and the roentgenologic findings. The infiltrates were delicate, small and round or fan shaped. They originated in a widened hilus. Their absorption was accomplished within one to three weeks after the lytic defervescence. Chemotherapeutic preparations had no effect on the fever. The scanty and uncharacteristic sputum contained a mixed flora. The leukocytes at the beginning were either normal or diminished in number and there was considerable deviation to the left. The leukocytes frequently rose to 15,000 in the course of the disorder. The sedimentation reaction was not uniform; usually it was slightly increased. The course was benign. Complications developed in only 4 cases. Dense pneumonic infiltrates with effusion were present in 3 of these. The pathogenic organism could not be determined. The authors assume that it was virus pneumonia because the symptoms and the character of the pulmonary infiltrates resembled those of the atypical pneumonia described by Smiley and others.

Meynet's Nodes.—Junet and Alphonse point out that Meynet in 1875 called attention to the appearance of subcutaneous nodules in the course of acute articular rheumatism. Other observers subsequently referred to these nodules as Meynet's nodes. Neglected for many years, they have received more attention in the last two decades, chiefly because they are encountered in all forms of rheumatism and are regarded as a link between acute articular rheumatism and chronic infectious rheumatism. Some observers, particularly Coombs, regard them as the most specific manifestation of the disease. Meynet's nodes are rarely encountered in Geneva in spite of the relative frequency of acute articular rheumatism and of chronic rheumatism. The authors report the case of a girl in whom the nodes constituted the only typical manifestation during the early stage of cardiac rheumatism. Acute articular rheumatism, chronic infectious rheumatism and Still's disease belong to one nosologic family; Meynet's nodes are their common manifestation.

Revista Clínica Española, Madrid

7:93-144 (Oct. 30) 1942. **Partial Index**

Poliomyelitis. E. Arjona Trigueros.—p. 8.
*Painful Hepatic and Perihepatic Syndromes in Course of Cardiac Insufficiency. F. Ferrer y Solervicens.—p. 103.
Changes in Intestinal Absorption: Protein Impoverishment After Resection of Stomach. C. Jiménez Diaz. J. M. Romeo.—p. 116.
Determination of Nicotinic Acid in Foods. F. Grande Covián.—p. 127.
*Intracranial Hemorrhages in the Newborn. L. De la Villa.—p. 133.
Focus of Contagion in Tuberculosis of Children. M. Santos de Cossío.—p. 141.

Painful Hepatic and Perihepatic Syndromes in Cardiac Insufficiency.—Ferrer y Solervicens points out that in cardiac insufficiency the true cardiac pains are often accompanied by pain in other organs involved in the existing circulatory failure. In chronic congested liver pain is dull and continuous. If the congestion increases suddenly as the result of temporary insufficiency of the right ventricle, paroxysms of pain may appear in the right hypochondrium; they resemble severe hepatic colics. This is the case particularly when the right ventricle empties its blood into rigid sclerotic lungs incapable of storing blood. Cardiac insufficiency may develop in the course of diseases of the liver, the bile passages, the stomach and the duodenum and may aggravate and prolong them. Acute or subacute dilatation of the stomach and duodenum may be observed in insufficiency of the right heart with hepatic cirrhosis and pulmonary sclerosis. Diseases of the liver and of the neighboring organs may cause cardiac insufficiency in patients whose cardiac reserve is small, or they may intensify an already existing cardiac insufficiency.

Intracranial Hemorrhage in the Newborn.—According to De la Villa, intracranial hemorrhages are a frequent cause of death in newborn infants. He observed 74 fatalities among 3,000. Intracranial hemorrhage was the cause in 42, or 56 per cent. Congenitally weak children develop intracranial hemorrhages most frequently. Vitamin K is valuable in the prophylaxis and treatment of intracranial hemorrhages of the newborn. The vitamin should be given to all parturient women. The newborn should be fed within the first eight hours after delivery.

Revista de Neuro-Psiquiatría, Lima

5:432-521 (Dec.) 1942. **Partial Index**

*Ménière's Vertigo. A. Asenjo and S. Riesco.—p. 432.
Experimental Pathogenesis of Epilepsy and Hysteria. F. Sal y Rosas.—p. 450.

Ménière's Vertigo.—Asenjo and Riesco treated 18 patients with Ménière syndrome by administering 6 to 8 Gm. of potassium chloride daily, 0.25 Gm. of vitamin B_1, nicotinic acid, phosphorus and a diet rich in vitamin B. The treatment was continued for four to six months. The immediate and late results were good in 12 patients who were observed for more than three years. The immediate results were good in 2 patients who recently completed the treatment. Vertigo was almost entirely controlled. Deafness and buzzing ear sounds persisted. Resection of four fifths of the acoustic nerve was resorted to in 3 of the 4 cases in which the medical therapy failed. The results were excellent in all 3.

Book Notices

Medico-Legal Blood Group Determination: Theory, Technique, Practice. By David Harley, M.D., B.Sc., F.I.C., The Laboratories of the Inoculation Department, St. Mary's Hospital, London. Cloth. Price, $3.50; 12s. 6d. Pp. 119, with 13 illustrations. New York: Grune & Stratton; London: William Heinemann, Ltd., 1943.

This small volume fulfils the promise of the title. It is divided into three sections. The first gives a brief but clear picture of the present day knowledge of the A, B, O and M, N systems of blood groups and types, including the inheritance, distribution in tissues other than blood and the principles of medicolegal application. Section two describes in considerable detail the technic of the author for paternity tests and for blood and secretion stains. It is based on the capillary tube technic of Wright. In the last section (the largest of the three) the results in sixty-five paternity tests with ten exclusions and records of studies of blood, semen and saliva stains in fifteen criminal investigations are presented. Proposed bastardy bills and an interesting report of a committee of the House of Lords on the bastardy bill should be read by those who are interested in passage of laws permitting the use of blood groups in paternity litigation in our courts. The book can be recommended to all who are interested in the subject.

Family Treasures: A Study of the Inheritance of Normal Characteristics in Man. By David D. Whitney, Ph.D., Professor of Zoology, University of Nebraska, Lincoln. Cloth. Price, $3.50. Pp. 299, with 234 illustrations. Lancaster, Pa.: Jaques Cattell Press, 1942.

If one possesses a family photograph album covering three or four generations of ancestors and close relatives, one has therein a convincing demonstration of the inheritance of many normal human traits. Professor Whitney has made liberal use of his own family photographs as illustrations for his book. The best part of the book consists largely of photographic illustrations of the recurrence of similar characters in two or more generations of a family. These characters include shape of the ears, nose, lips, chin, jaws and teeth; form, color and pattern of head hair, face and body hair; shape, color and peculiarities of the eyes; shape, size and peculiarities of the hands and feet, fingers and toes, and finger and toe nails; peculiarities of the skin such as dimples and freckles; general health and vigor; temperamental traits and special abilities, and numerous other miscellaneous human traits revealed by photographs. For the physician there is little of interest in the book, for the author has purposely omitted all traits that are obviously pathologic, though he does allow himself to mention such abnormal traits as brachydactyly, polydactyly, color blindness, hemophilia, baldness and susceptibility to allergic symptoms. Little attention is given to the many human traits that differ quantitatively and which have been dealt with by exact biometric methods. No mention is made of the extensive use of twins in assessing the relative shares of genetic and environmental factors in determining many human differences. Nearly all characters are dealt with as though inherited as simple mendelian dominants or recessives, whereas it now seems clear that most human traits have a more complex mode of heredity. For the general reader, however, it may be wise to simplify the story of heredity even to the extent of oversimplification in order to make the point that nearly all human differences have a hereditary basis and are not altogether, as so many believe, the result of differences in the environment or maternal impressions. The main purpose of the book is to humanize the science of human heredity. This purpose it successfully accomplishes. The book should have a wide sale, even in wartime.

Insuficiencia circulatoria periferica: Colapso—shock. Por Blas Mola, Doctor en medicina, docente libre de patología médica de la Facultad de medicina de Buenos Aires. Paper. Pp. 80, with 5 illustrations. Buenos Aires: Libreria y editorial "El Ateneo," 1942.

This short monograph is an enlarged version of a series of lectures given by the author before several audiences in the Argentine Republic. Although the book is essentially practical, the reader is prepared by an excellent chapter on physiopathology of the circulatory system logically leading to those concerned with pathogenesis and etiologic factors. The remaining chapters are devoted to the clinical symptoms, differential diagnosis, prognosis and treatment. The indication of the different therapeutic means to be used in each case is especially good. The sources of the monograph are largely American, e. g. Cannon, Moon, O'Shaughnessy, but important Argentine contributions are also quoted. The subject is developed with remarkable clarity and conciseness, and the monograph appearing in these days is most timely. It should be read by the general practitioner and carried in the pocket by the military physician.

A Surgeon's Fight to Rebuild Men: An Autobiography. By Fred H. Albee, M.D., F.A.C.S., F.I.C.S. Foreword by Lowell Thomas. Cloth. Price, $3.50. Pp. 349, with 11 illustrations. New York: E. P. Dutton & Co., Inc., 1943.

The autobiography of Fred Albee could almost be accepted as a history of modern bone surgery. Every page of this thoroughly interesting volume is stamped with his dynamic personality. Many who read the book may question some of the claims made by Dr. Albee of having originated so many of the now widely accepted principles of bone surgery. No reviewer, however, can be honest with himself or with the medical profession in general without acknowledging the tremendous debt which the orthopedic surgeon of today owes to Fred Albee, who, together with other pioneer surgeons, helped to change the practice of bone and joint surgery from that of manipulation and strap and buckle therapy to one of the most highly skilled of all surgical specialties. This book constitutes much more than a partial history of orthopedic surgery. It is adventure, drama and philosophy. Albee has been spoken of as a bone carpenter. He is infinitely more than that. Throughout the pages of this book he is an architect and a creator of methods and ideas. As this book unfolds the interesting events of his life, the reader will become acquainted with the constructive imagination and driving energy of Albee the man as well as Albee the surgeon.

The Infectious Diseases of Domestic Animals with Special Reference to Etiology, Diagnosis, and Biologic Therapy. By William Arthur Hagan, D.V.M., D.Sc., Professor of Bacteriology and Dean of the Faculty, New York State Veterinary College, Cornell University, Ithaca, New York. Cloth. Price, $6. Pp. 665, with 146 illustrations. Ithaca, New York: Comstock Publishing Company, Inc., 1943.

This is a first edition. The broad field indicated by the title is considered in the manner in which courses in veterinary pathogenic bacteriology are usually taught, but the breadth of the information has not heretofore been available in any one textbook. As the author states, "the work is less than a textbook of bacteriology in that a knowledge of the general principles of the subject is taken for granted and this part of the usual text is omitted." An introductory division of the text contains a consideration of the general fundamentals of disease causation and transmission and of immunology. The succeeding major divisions are devoted to pathogenic bacteriology, mycology and protozoology and to virology. The methods of preparation of materials and the technics usually employed for the study of the taxonomy, cultural features and physiology are largely omitted. The pertinent information, however, concerning the results that may be expected from such studies of the various micro-organisms is briefly stated. Similarly given are the characteristics of nonpathogenic micro-organisms that are close relatives of the pathogens. The major part of the text space is devoted to the pathogenic attributes and the methods of transmission of the infectious agents and to important diagnostic features of the infectious processes and methods of their control, including hygiene, biologic treatments and chemotherapy.

The subject material is confined to 505 text pages. The six major divisions are divided into forty-four chapters. The chapter labels are derived from the generic names of the various micro-organisms or from certain features of their morphology and physiology or from the tissue trophisms of the infectious agents. References to important literature are cited throughout the text and grouped for convenience at the end of various divisions. Excellent illustrations are given which include cellular and colonial characteristics of various micro-organisms, and gross and microscopic pathology of various disease processes.

The subject of the transmission of infectious agents from animals to human beings is thoroughly presented. This information imparts to the text a high public health value. The

presentation of the pertinent knowledge concerning the infectious diseases of the domesticated animals by an author whose substantial contributions to and teaching in this field of science are well known bids well to insure the text having a wide usage among veterinary students, practitioners and investigators in the broad field of infectious diseases.

This authoritative volume is worthy of the highest praise and can be recommended without reservation to physicians and others desirous of having in a single volume the pertinent facts concerning the infectious diseases of domestic animals. The book is a notable contribution to the literature of comparative bacteriology and pathology. The publishers have contributed admirably to the enterprise. The text is attractively and substantially bound and represents a fine example of good book making.

Electrocardiografía práctica. Por Luis Hervé L. Prólogo del Prof. A. Garreton Silva. Second edition. Paper. Pp. 110, with 36 illustrations. Santiago de Chile: Central de publicaciones, 1942.

This monograph on practical electrocardiography, written in Spanish, by one of Professor Silva's associates, compares favorably with the more elementary of the American publications on this subject. The author in this edition has incorporated the newer terminology of taking precordial leads. He shows his thorough familiarity with the recent American literature and has incorporated much of this knowledge in the monograph, which should be of great value to the Latin American physician interested in utilizing the electrocardiogram in his practice. It is regrettable that the reproductions of the illustrations are poor and that in one or two places the printing of the text is slightly blurred. However, the contents are excellent, the ideas are simply expressed, the material is well organized and the publication accomplishes satisfactorily the purpose for which it was written.

An Introduction to Biophysics. By Otto Stuhlman Jr., Ph.D., Professor of Physics, University of North Carolina, Chapel Hill. Cloth. Price, $4. Pp. 375, with illustrations. New York: John Wiley & Sons, Inc.; London: Chapman & Hall, Ltd., 1943.

In spite of the great importance of physics for the understanding of physiologic and therapeutic procedures, relatively little has been done to prepare students of medicine adequately in the physical foundations of physiology and medicine. The present book is a successful attempt in this direction. It deals with the physics of x-rays and radioactivity and discusses the physical principles involved in the microscope and the electron microscope. In addition, physical problems encountered in the study of the functions of the eye and ear are presented. Moreover, a discussion of the physics of surface membranes is given. The presentation of these problems is clear and is supported by numerous diagrams. Unfortunately, it is somewhat difficult to the average student of medicine. The reviewer suggests for a further edition an expansion and possibly a more elementary treatment of the problems involved. Topics which could be added should include the physics of temperature regulation, calorimetry and the mechanics of movements. The reviewer would also find it exceedingly useful if a thorough discussion should be given of the various electrical devices used in modern physiology for stimulation of nerves as well as for recording of action potentials.

Synopsis of Diseases of the Skin. By Richard L. Sutton, M.D., and Richard L. Sutton Jr., M.D., Assistant Professor of Dermatology, University of Kansas Medical School. Fabrikoid. Price, $5.50. Pp. 481, with 413 illustrations. St. Louis: C. V. Mosby Company, 1942.

The value of synopses and compends of branches of medicine has often been debated. Those initiated in the subject matter may frown on such abbreviated works, though they are popular with students. Judging by the number appearing recently, the publishers find a demand for them now greater than ever. If there must be synopses, this one by the Suttons is good. With their large experience at textbook writing they could be depended on to turn out a good one. There is a large amount of material simply and appetizingly presented in this pocket sized book. It is questionable whether some of the uncommon and rare entities, such as parapsoriasis, are worth including. The few lines devoted to them give the novice no conception of them. The space sacrificed in order to be inclusive could more profitably be given toward enlarging the view of the common and more important everyday diseases. The illustrations are excellent and well chosen. The paper is of a good quality and thin, which permits compression into a narrow space. The binding is sturdy.

Nutrition and the War. By Geoffrey Bourne, D.Sc. Second edition. Cloth. Price, $1.50. Pp. 148. New York: Macmillan Company; Cambridge: University Press, 1942.

This little book has been designed to help the average person gain some knowledge of foods and nutrition. There is a discussion in general terms of foods as sources of calories, proteins, fats and carbohydrates. The significance of vitamins and minerals is not neglected. An interesting chapter is concerned with nutrition problems under wartime conditions. Approximately half the book is devoted to a listing of the composition of many common foods. The data are provided in terms of numbers of calories and percentage composition in terms of protein, carbohydrate and fat. The data on the vitamins and minerals, however, are not presented in quantitative terms. The book has a suitable index and should prove useful to those who wish an elementary knowledge of the subject of nutrition.

Contribución al estudio anatomo clínico de las afecciones del endocardio. Por el Dr. Manuel Perea Muñoz. Tesis de doctorado, Universidad nacional de Buenos Aires, Facultad de ciencias médicas. Paper. Pp. 363, with 92 illustrations. Buenos Aires, 1942.

In a survey of 206 cases of fatal endocarditis, the author analyzes the different types of the disease mostly from an etiologic and clinical point of view. The principal conclusion reached is that many patients died because the effort required in their trades was above the capacity of effort imposed by their heart lesions. Accordingly, many lives could have been saved if these patients had had the right occupations for their conditions. It is gratifying to know that the city of Buenos Aires, under the inspiration and direction of Professor Bullrich, has started a "Service for the social assistance of the cardiac patient."

Diseases of the Nose, Throat and Ear: Medical and Surgical. By William Lincoln Ballenger, M.D., F.A.C.S., and Howard Charles Ballenger, M.D., F.A.C.S., Associate Professor of Otolaryngology, Northwestern University School of Medicine, Chicago. Eighth edition. Cloth. Price, $12. Pp. 975, with 631 illustrations. Philadelphia: Lea & Febiger, 1943.

This is the eighth revised edition of a well established favorite of both students and specialists. It contains a great deal of factual material and numerous enlightening illustrations. The authors have made an earnest effort to keep the work up to date by constantly adding to it material from the current literature. They have had the help, furthermore, of a number of associate editors of excellent standing, and the result of their combined labors is a worth while textbook of established value.

Las posibilidades de diagnóstico precoz en las osteomielitis agudas de los huesos largos de los niños. Por Hector Jorge Sanchez. Tesis del doctorado, Universidad nacional de Buenos Aires, Facultad de ciencias médicas. Paper. Pp. 46, with 13 illustrations. Buenos Aires, 1942.

The author describes a new radiologic sign which he interprets as subperiosteal osteoporosis, which would allow diagnoses of osteomyelitis within the first week of the disease. This view is supported by several clinical observations and illustrated by good reproductions of x-ray plates.

Virilización suprarrenal. Por el Dr. Enrique B. del Castillo. Tesis de profesorado, Universidad nacional de Buenos Aires, Facultad de ciencias médicas. Paper. Pp. 203, with 49 illustrations. Buenos Aires, 1941.

A comprehensive review on the subject with numerous references including important contributions by South American authors. The author himself contributes more than sixty studies, some thoroughly done, of patients, children and adults.

Uretrografía. Por Hector Daniel Muñoz. Tesis de doctorado, Universidad de Buenos Aires, Facultad de ciencias médicas. Paper. Pp. 128, with illustrations. Buenos Aires: S. A. Casa Jacobo Peuser, Ltda., 1942.

A detailed description of the method and a complete study of the numerous cases observed by the author. Numerous reproductions of x-ray plates and fifty-six references are appended.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

ELECTROCARDIOGRAPHIC INTERPRETATION OF BUNDLE BRANCH BLOCK

To the Editor:—Fifteen years ago we were taught (I quote from McLeod's Physiology and Biochemistry 1922. "Defects of the right or left branch of the A-V bundle give electrocardiograms which closely resemble those described as characteristic of left or right ventricular hypertrophy respectively. In the left bundle branch defects the electrical changes of the right ventricle will impress themselves on the electrocardiogram." In Graybiel and White's book on electrocardiography just the opposite views are expressed. What McLeod calls a right bundle branch block Graybiel and White call a left bundle branch block. Will you please explain?

Angeline Piscitelli, M.D., San Francisco.

ANSWER.—The change in the point of view concerning the particular bundle branch involved in the electrocardiographic interpretation of bundle branch block records is well expressed in a number of the recent textbooks on electrocardiography. Pardee in the fourth edition (1941) of his book entitled Clinical Aspects of the Electrocardiogram (New York, Paul B. Hoeber) states that "for many years the localization of the lesion in hearts showing bundle branch block was incorrectly stated, because too close an analogy was drawn between the human electrocardiogram and the records obtained from dogs after cutting or crushing the branches of the bundle." Ashman and Hull (Essentials of Electrocardiography, second edition, New York, Macmillan Company, 1941) give the following evidences for the newer terminology. "1. In lead 1 of the exposed human heart, stimulated on the anterior surface of the right ventricle, the chief deflection is upright; and the deflection is directed downward upon similar stimulation of the left ventricle. 2. The interval which elapses between the onset of the QRS complex and the beginning of the carotid arterial pulsation averages longer in patients with wide R_1. If, in such cases, the left ventricle is activated late because of block in the left branch, a late carotid pulsation is obviously to be expected. 3. Chest leads from over the right ventricle indicate early activation of the underlying subepicardial muscle layers in left, and late activation in right, BBB, as we have named them. Chest leads from over the left ventricle indicate the reverse. Animal experiments have shown that the method is valid when large differences in times of activation are involved. 4. The cardiac anatomy of the monkey is closer to that of man than the anatomy of the dog. In monkeys, section of one or the other branch produces electrocardiograms which agree with Wilson's terminology. 5. In human hearts, revived by perfusion after death, section of one or the other branch produces the expected picture according to modern terminology. 6. The fact that the human limb lead records can be given a reasonable explanation if Wilson be right, whereas they would be wholly inexplicable if the older terminology were correct, is cogent evidence. 7. Late in rheumatic mitral or in pulmonary stenosis, RBBB, according to Wilson's terminology, is seen not infrequently. In late aortic regurgitation, what he names LBBB may appear. The reverse findings are much rarer. These facts were hard to understand on the basis of the older interpretations. 8. What is now designated RBBB is much more likely than the other type to be unassociated with clinical evidence of heart disease. That the right branch extends for a considerable distance as a single fiber bundle without branching, whereas the left branch subdivides promptly, makes this fact understandable. A small, clinically unimportant lesion may more easily interrupt the right, than the left, branch."

ABSORPTION OF GAS THROUGH MIDDLE EAR MUCOSA

To the Editor:—Is there any danger of gas being absorbed through the ear of a patient who is without an ear drum as a result of chronic otitis media.

Captain, M. C., A. U. S.

ANSWER.—The mucosa of the middle ear is able to absorb both gases and liquids with considerable rapidity, as is evidenced by the rapid absorption of oxygen and nitrogen from the middle ear when the eustachian tube is occluded. The amount of gas that could be absorbed when the drum membrane is absent would depend on the amount that would penetrate to the depth of the ear canal.

DIAGNOSIS AND TREATMENT OF VAGINAL BLEEDING

To the Editor:—A woman aged 37 has had irregular vaginal bleeding for twelve years. Sometimes the flow has been continuous for months at a time. Other symptoms are dizziness and stomach distress. The blood pressure is 140/80. The blood Wassermann reaction is negative. She is short in stature, with much fat around the hips and thighs. There is excess hair on the upper lip. Before coming to me she had taken injections of a pituitary extract. She had also had one curettage with only temporary relief from bleeding. I treated her with progesterone in oil, seven injections, 2 units each, which reduced the flow but did not stop it. She was sent to a surgeon, who found her uterus normal in size and recommended injections of a combination of chorionic gonadotropin and solution of posterior pituitary. She was given eight injections (a total of 10 cc.); this caused her bleeding to be more excessive. I should be glad of advice in the further treatment of this case. M.D., Wisconsin.

ANSWER.—If the curettement was performed more than two years ago, it should be repeated now. If malignant growth is not found and the bleeding recurs after the curettement or if the curettement was done recently, the patient may be treated with an oral estrogen preparation. A 5 mg. tablet of diethylstilbestrol may be taken every night for twenty nights, provided the drug does not produce disagreeable side effects such as nausea or abdominal distress.

In some cases one course of diethylstilbestrol will regulate the menses but in other instances the beneficial effect is only temporary. Nevertheless the treatment is distinctly worth while in this case. Another remedy is the use of testosterone propionate. Twenty-five mg. may be given intramuscularly three times a week for four weeks. If the estrogen or androgen produces temporary relief, repeated courses may be given at intervals even for a period of years; but there must be intervals of a few months between the courses of therapy. If the bleeding is not checked or definitely reduced by either the diethylstilbestrol or the testosterone propionate, a hysterectomy should be performed, because irregular bleeding of twelve years' duration not amenable to conservative treatment is serious enough to warrant removal of the uterus.

VENTRICULAR SEPTAL DEFECT AND MARRIAGE

To the Editor:—Should matrimony be discouraged for a woman aged 20 with a loud, harsh, widely heard systolic murmur, maximal in the fourth left interspace, typical of a ventricular septal defect; definite thrill over the precordium; and the apex in the fifth left interspace ½ inch to the left of the nipple line? The electrocardiogram showed a rate of 84 with a bibasic QRS complex in all leads. An x-ray examination of the chest revealed a general enlargement of the heart of approximately 50 per cent, involving chiefly the left ventricle. There were accentuated vascular markings in both hili. At present the girl is physically fit to perform her secretarial duties and shows no signs of decompensation even after moderate physical exertion. If matrimony should be allowed, would it not be advisable to avoid pregnancy? M.D., Illinois.

ANSWER.—It is a moot point as to whether matrimony should be advised in a case like this. If there was an uncomplicated ventricular septal defect, that is, uncomplicated by cardiac enlargement of any significance, one might give permission, with the idea of restricting the size of the family. Even so there is the hazard, which is an appreciable one, of subacute bacterial endocarditis. With cardiac enlargement, however, which here seems to be considerable and with accentuated lung hilus shadows, it is obvious that the heart is already under considerable strain and might do badly if exposed to the extra burden of pregnancy. It would seem, therefore, advisable to avoid pregnancy, although marriage otherwise might be compatible with a good many years of survival.

VITAMIN A AND PROGRESSIVE MYOPIA

To the Editor:—I should like to have some information regarding the injectable (intramuscular) vitamin A for progressive myopia. Who manufactures it, what is the dosage and what results have been obtained?

Jack Cantor, Lieutenant, M. C., A. U. S.

ANSWER.—There is as yet no convincing evidence that vitamin A has any effect in progressive myopia. In most cases of vitamin A deficiency, oral use of a vitamin A concentrate is effective. Probably the only exception to this is in keratomalacia associated with dysentery or some other intestinal disorder which prevents assimilation of vitamin A by the oral route. Such a case was reported by Goldberg and Schlivek (Necrosis of the Cornea Due to Vitamin A Deficiency, *Arch. Ophth.* **25**:122 [Jan.] 1941), who injected 100,000 units of vitamin A in sesame oil intramuscularly daily. The Council on Pharmacy and Chemistry has not accepted any vitamin A preparation for parenteral use, and available evidence affords no proof of the therapeutic value of vitamin A in progressive myopia. It is believed that vitamin A preparations suitable for parenteral administration have been supplied for experimental use by such firms as Abbott Laboratories, S. M. A. Corporation and the Winthrop Chemical Company.